PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CONTENTS

TRADE NAME	MODEL	SET AND FOLDER No.
Capehart	2P56 (Ch. CR-218)	330-2
Capehart	46TP56B, M (Ch. CA-239)	330-3
David Bogen	R710	330-4
Dumont	RA-340, RA-341, RA-342, RA-343 Tel. Rec. Prod. Chg. Bul. 167	330-1
Firestone	13-G-201, 13-G-202, 13-G-203, 13-G-204, 13-G-205, 13-G-206 (Codes 334-5-A61C/A, 334-5-A61U/A) Tel. Rec.	330-5
Harmon-Kardon	A-400	330-6
Motorola	Ch. TS-530, Y, VTS-530, Y Tel. Rec. Prod. Chg. Bul. 167	330-1
Oldsmobile	983334	330-7
Philco	24D6126L, M, 24D6320C, M (Ch. TV-444) Tel. Rec.	330-8
Pilot	AA-905	330-9
Silvertone	5161, 5171, 6100, 6101, 6106, 6107, 6108, 6109, 6110, 6111, 6112, 6113, 6114, 6115, Y, 6116, 6117, 6120, 6121, 6126, 6127, 6128, 6129, A, 6130, 6131, A, 6160, 6164, 6165, 6166, 6167, 6171, 6172, 6173, 6174, 6176, 6184, 6186, 6190, A, 6191, 6192, A (Ch. 528.35001, 2, 3, 528.35301, 2, 3, 4, 5, 528.35601, 2, 3, 4, 5, 6, 528.37300, 1, 528.37900, 1, 528.38900, 1, 2, 528.39300, 528.42000, 1, 2, 528.42100, 1, 2, 3, 528.42200, 1, 2, 528.42300, 1, 2, 528.42400, 1, 2, 3, 4, 528.42500, 1, 2, 3, 528.42900, 528.43000, 528.43500, 1, 528.43600, 1, 528.43700, 1, 528.43800, 1, 528.43900, 1, 528.44000, 1, 528.44101, 528.44200, 1, 528.44901, 528.45000, 1, 528.45200, 1, 528.45500, 1, 528.45600, 1, 528.45900, 1, 528.47600, 528.47700) Tel. Rec.	330-10
Trav-Ler	517-106, 517-107, 521-111, 521-112 (Ch. 520C5) Tel. Rec.	330-11
Zenith	Y2671R, RU, Y2672E, EU (Ch. 22Y21, U) Tel. Rec.	330-12
ADMIRAL (Sch.)	14U3B, 14U3C,	330-13-S
Zenith (Sch)	Z1814R,Y : Z1816C,E,R : Z1818C,E,R : (Ch. 16Z20 – 16Z21)	330-13-S
Hoffman	7B125, 7M124 (Ch-195)	Service
Westinghouse,	H782K-783K-784K-785K (21) H791-792K21 (Ch. V-2247-1)	Service

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 7 IN SET 315

Motorola Chassis TS-530, Y were covered in Photofact Folder 7 — Set 315.

CORRECTION NOTICE

The correct part number for the UHF tuner is PTT-37.

Late in production many new models and late production changes were added.

The following is a complete list of all models and the chassis used in each.

MODEL	CHASSIS	MODEL	CHASSIS
Y21K38	TS-530Y	21K38	TS-530
Y21K38B	TS-530Y	21K38B	TS-530
Y21K46	TS-530Y	21K46	TS-530
Y21K46B	TS-530Y	21K46B	TS-530
Y21K50B	VTS-530Y	21K50B	VTS-530Y
Y21K50M	VTS-530Y	21K50M	VTS-530Y
Y21T25CH	TS-530Y	21T25CH	TS-530
Y21T25PK	TS-530Y	21T25PK	TS-530
Y21T25TN	TS-530Y	21T25TN	TS-530
Y21T30B	TS-530Y	21T30B	TS-530
Y21T30M	TS-530Y	21T30M	TS-530

TO REDUCE SHOCK HAZARD

C103 is increased from 470MMF to .01MFD.

TS-530B-03 TO CORRECT VERTICAL LINE STRUCTURE

A shielded lead is added from the horizontal hold control (R3) to R87. The shielded lead is dressed away from the 1st video IF circuit.

TS-530B-04 CIRCUIT CHANGES

L38 is omitted.

C94 is connected directly to pin 6 of the yoke socket.

TS-530B-05 TO REDUCE HUM

C2A is increased from 100MFD to 150MFD.

TS-530B-06 COMPONENT CHANGES

The part number of C1 is changed to 23B737620.

TS-530B-07 COMPONENT CHANGES

R1A (contrast control) is decreased from 350Ω to 250Ω.

R43 is omitted.

MOTOROLA CHASSIS TS-530, TS-530Y, VTS-530, VTS-530Y

PRODUCTION CHANGES
BULLETIN 167

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1956 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

TS-530C-00	TO IMPROVE AUDIO SENSITIVITY L31 is changed to part #24B738122. L32 is omitted. R54 is omitted. C64 is decreased from .01MFD to .005MMF. C63 is decreased from .01MFD to .005MMF. TO REDUCE ADJACENT CHANNEL INTERFERENCE A 47.25MC trap is added. See Fig. 1 for partial schematic showing the revised circuit. TO IMPROVE VIDEO IF ALIGNMENT The first video IF stage is revised to improve alignment. A partial schematic is given in Fig. 1 showing the revised circuit. With this change the tuners change to part #TT-79B and TT-80B. COMPONENT CHANGES A 47K resistor is added from pin 1 of V5 to the junction of C43 and L20. C48 is omitted.
TS-530C-01	CIRCUIT CHANGE R62 is removed from ground. The low side of the contrast control (R1A) is removed from ground. Reconnect R62 to the low side of the contrast control (R1A). COMPONENT CHANGES SP1 is changed to part #50K737923, 5-1/4" speaker (50Ω speaker field). SP1 is changed to part #50C737448, 8" speaker (50Ω speaker field).
TS-530C-02	COMPONENT CHANGES SP1 is changed to part #50K737291, 5-1/4" speaker (85Ω speaker field). SP1 is changed to part #50C737673, 8" speaker (85Ω speaker field).
TS-530C-03	TO PREVENT DAMAGE TO THE DAMPER TUBE A .005MFD @ 2000V capacitor is added from pin 7 of V14 to ground.
TS-530C-04 "Y" version only	TO IMPROVE UHF TUNER BELT DRIVE A roller and spring assembly is added to the UHF tuner belt drive to reduce slippage (part #1V735489).
TS-530C-05	TO PREVENT TUBE BREAKDOWN R25 is increased from 6.8K to 8.2K, 3 watt glass type. R29 is increased from 6.8K to 8.2K, 3 watt glass type.
TS-530C-06	COMPONENT CHANGE A 680Ω resistor is added from pin 6 of V6A to ground.
TS-530C-07	TEST POINT ADDED C67 is changed to a .001MFD feed-thru capacitor.
TS-530C-08 "Y" Versions only	UHF TUNER CHANGED The UHF tuner is changed to part # PTT-37B.
TS-530D-00	TO IMPROVE CONTRAST The video output circuit has been revised to reduce white limiting at maximum contrast with a weak signal. A partial schematic is given in Fig. 2 showing the revised circuit. TO ELIMINATE HORIZONTAL PULL C83 and C84 are changed to a tolerance of 10%.
TS-530D-01	TO REDUCE THE EFFECT OF PICTURE TUBE CATHODE TO GRID LEAKAGE R46 is decreased from 2.2Meg to 470K. C56 is increased from .05MFD to .1MFD. TO REDUCE RADIATION R16 is increased from 1K to 3.3K. The tuners are changed to part #TT-77C and TT-78C.
TS-530D-02	COMPONENT CHANGE The voltage rating of C86 is increased from 1000V to 2000V. Some chassis incorporating this change were coded D-01-1.

TS-530D-03	COMPONENT CHANGE A 33K resistor is added between pin 10 of V17 and terminal 2 of T2. A 100K or 39K resistor was used in some sets, however, a 33K resistor is the recommended replacement.
TS-530D-03-1	COMPONENT CHANGE The vertical hold control (R4) is replaced by a 2Meg control (part #18K739260). With this new control a 680K resistor is added from the junction of R73, C79, R4 and T1 to the center arm of R4. A 330K resistor is added from the center arm of R4 to ground. When replacing the vertical hold control (R4) replace with part #18K737346 and omit the resistors added above.

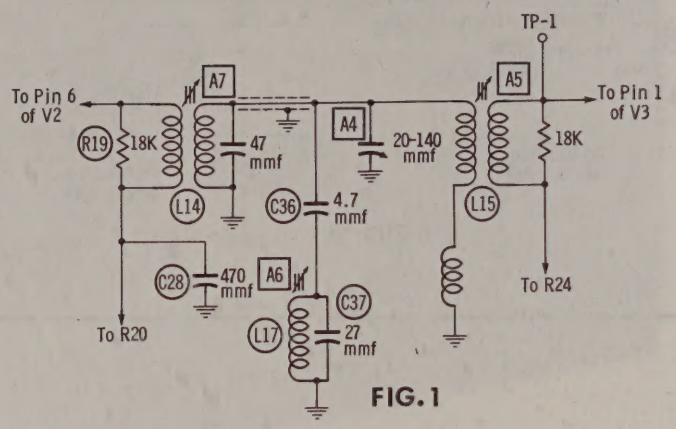


FIG. 1

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 4 IN SET 318

Dumont Chassis RA-340, RA-341, RA-342, RA-343 were covered in Photofact Folder 4 – Set 318.

The following changes were made during production.

Run 3

TO REDUCE 4.5MC RADIATION

Disconnect C68 from the junction of R72 and R74 and reconnect to ground.

TO IMPROVE SYNC PERFORMANCE

R86 is increased from 470K to 680K.

R88 is increased from 240K to 270K 5%.

TO IMPROVE HIGH VOLTAGE REGULATION

R54 is decreased from 33K to 15K.

R55 is increased from 33K to 120K.

R56 is decreased from 68K to 18K.

TO IMPROVE HORIZONTAL STABILITY

A 3.3K resistor is added between the junction of R60, C58 and the junction of R64, R25 and C36.

C100 is changed to a tolerance of 5%.

TO IMPROVE FOCUSING

Pin 6 of V23 is removed from ground and reconnected to the 135V line.

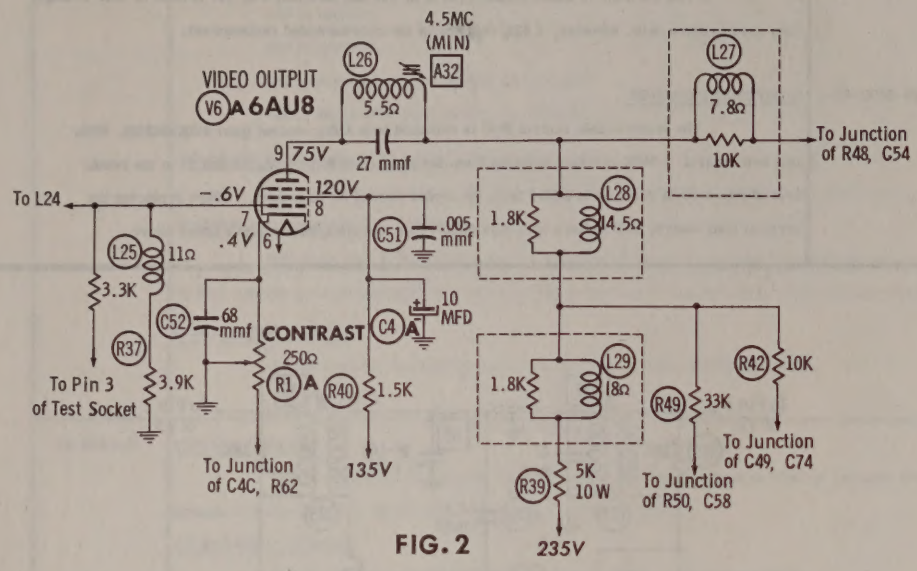
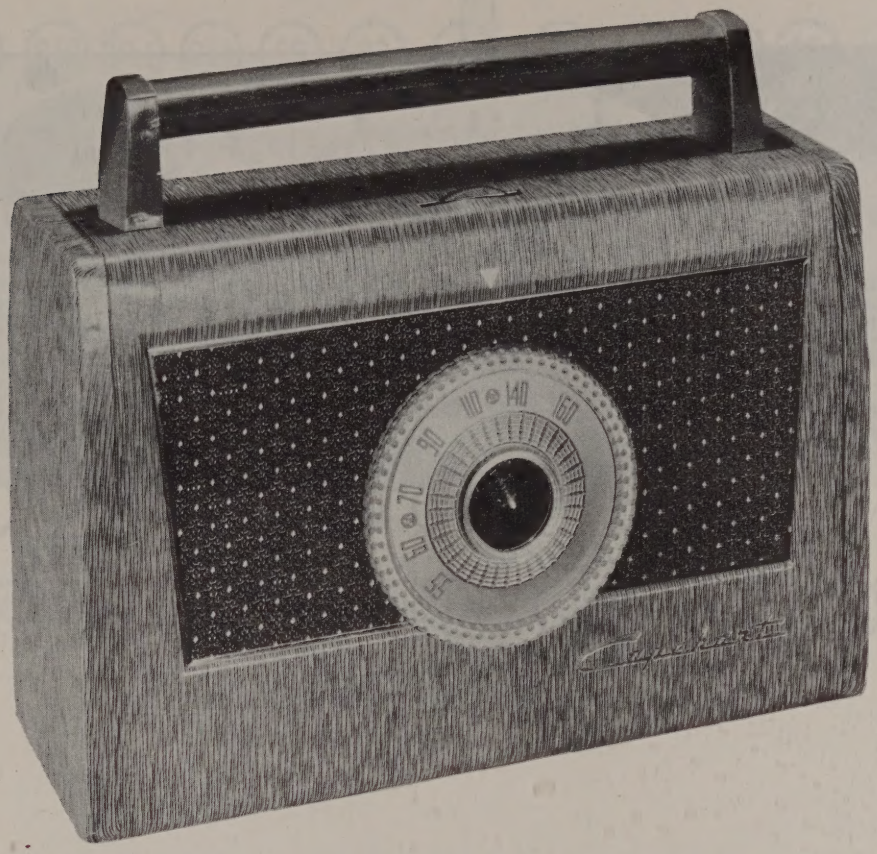

4.5MC
(MIN)
VIDEO OUTPUT
V6A 6AU8
L26
A32
5.5Ω
L27
7.8Ω
To Junction
of R48, C54
10K
9
75V
27 mmf
120V
8
7
6
-.6V
.4V
To L24
L25
11Ω
3.3K
C51
.005
mmf
1.8K
L28
4.5Ω
C52
68
mmf
CONTRAST
250Ω
C4
10
MFD
R37
To Pin 3
of Test Socket
3.9K
R1
R40
1.5K
1.8K
L29
18Ω
R42
10K
R49
33K
To Junction
of C49, C74
To Junction
of C4C, R62
135V
R39
5K
10W
To Junction
of R50, C58
235V

FIG. 2

CAPEHART MODEL
2P56 (Ch. CR-218)



TRADE NAME	Capehart Model 2P56 (Ch. CR-218)
MANUFACTURER	Capehart-Farnsworth Corp., Fort Wayne 1, Indiana
TYPE SET	Three Power Portable AM Superheterodyne Receiver
TUBES (Four)	Types 1R5 Converter, 1U4 IF Amplifier, 1U5 Det.-AVC-AF Amp., 3V4 Rectifier
POWER SUPPLY	105-125 Volts AC-DC (or) 3 Volts "A" Supply & 67.5 Volts "B" Supply
RATING	.12 Amp. @ 117 Volts AC (or) 145 MA @ 3 Volts DC & 10.5 MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	540KC - 1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 6 (grid) of 1U4 (V2). Low side to B-.	455KC (400~ Mod.)	Tuning gang fully closed.	Across voice coil.	A1, A2	Adjust for maximum output.
2.	"	High side to pin 6 (grid) of 1R5 (V1). Low side to B-.	"	"	"	A3, A4	"
3.	"	"	540KC	"	"	A5	"
4.	"	"	1620KC	Tuning gang fully open.	"	A6	"
5.		Loop	1500KC	Tune to 1500KC signal.	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1956 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

CAPEHART
MODEL 2P56 (Ch. CR-218)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	1R5	
V2	IF Amplifier	1U4	
V3	Det.-AVC-AF Amplifier	1U5	
V4	Output	3V4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	CAPEHART PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■50	150	750090B-46		C057	FP309	TMT-63	T-300	R2248 *
B	▲30	150							
C	150	25							

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	CAPEHART PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	200	2246-4730	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C3	47		2240-006	SI47	D6-470	TP29	GP1K-470	UC-5447	5GA-Q47	
C4	5000		450469A-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C5	5000		450469A-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C6	5000		450469A-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C7A	150					TP36	811-151	UC-5315	5GA-T15	
B	2000					K072	801-002	DC-522	5HK-D2	
C	150		†453566A-1	†PA-136-3	†PC-165	TP36	811-151	UC-5315	5GA-T15	
D	10000					K082	811-01	DC-511	5HK-S1	
E	5000					K082	811-005	DC-525	5HK-D5	
C8	.0047	600	2248-4720	BPD-0047	DD-472	CUB6D47	811-0047	PT6247	6TM-D47	
C9	5000		450469A-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C10	.22	200	2246-2240	P288N-22		CUB2P22		PT4022	2TM-P22	
C11	●20000		450469A-10	BPD-02	DD-203	K085	817-02	PT412	5HK-S2	

† Items C7A, C7B, C7C, C7D, C7E, R7A, R7B, R7C and R7D are combined in one unit.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	CAPEHART PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	750276A-7	B-70-S	A47-1Meg-Z	Q13-137	U53	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	Not Req.	SWE-20	76-2	US-27	Attach to R1A

RESISTORS

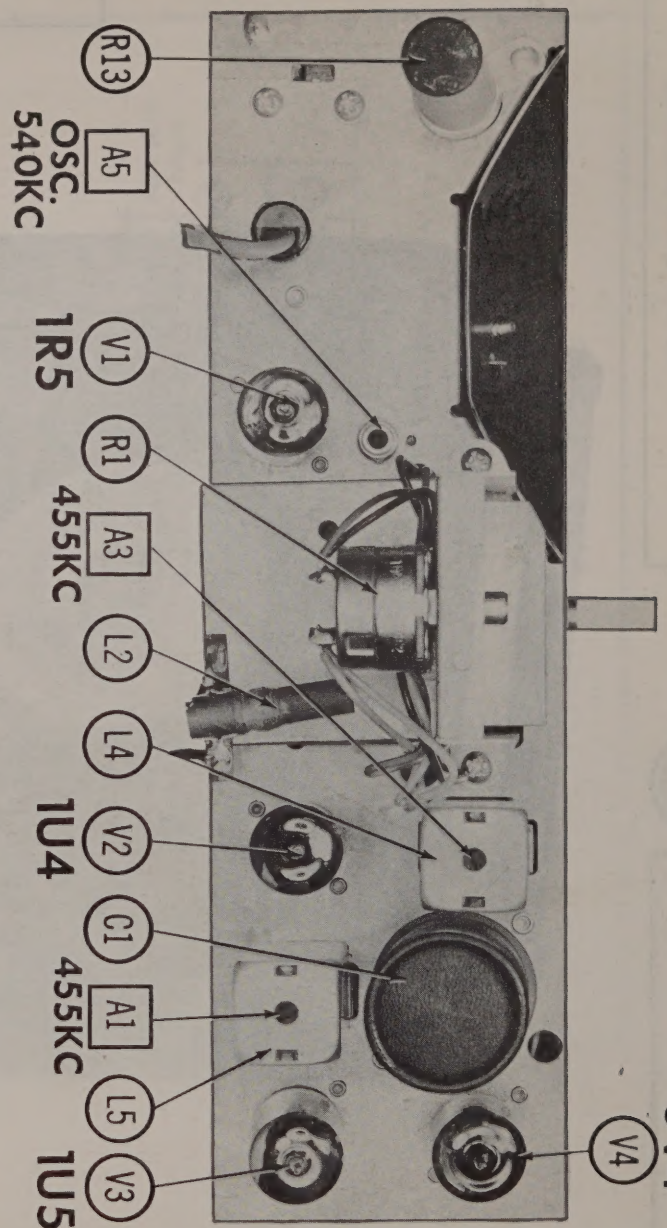
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CAPEHART PART No.	IRC PART No.	
R2	100K		3230-224	BTS-100K	
R3	4700Ω		3229-472	BTS-4700	
R4	3.3Meg		3230-335	BTS-3.3Meg	
R5	470K 5%			BTS-470K	Note 1
R6	3.3Meg		3230-335	BTS-3.3Meg	
R7A	10Meg			BTS-10Meg	
B	1Meg		†453566A-1	BTS-1Meg	
C	4.7Meg			BTS-4.7Meg	
D	3.3Meg			BTS-3.3Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CAPEHART PART No.	IRC PART No.	
R8	27Ω		3229-270	BTS-27	
R9	220Ω		3229-221	BTS-220	
R10	220K		3230-224	BTS-220K	
R11	270Ω		3229-271	BTS-270	
R12	1200Ω		3229-122	BTS-1200	
R13A	130Ω	3	650833A-3		
B	2200Ω	7			
R14	33Ω	1	650101A-19	BW1-33	

† Items R7A, R7B, R7C, R7D, C7A, C7B, C7C, C7D, C7E are combined in one unit.
Note 1. Not used in some versions.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA: CAPEHART PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	9.7KΩ	3-4Ω	Part of Spkr. 750520B-1		A-2927 ①	A-3329	24S49	S-11X	① Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	REPLACEMENT DATA: CAPEHART PART No.	QUAM PART No.	RCA TYPE No.	NOTES
SP1	4"	PM	3-4Ω	750520B-1	4A1	223S1	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: CAPEHART PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Loop Stick	.6Ω		651071B-1				
L2	Loop Stick Loading Coil	1.9Ω		651072A-1				
L3	Osc. Coil	.8Ω	6Ω	650841C-1	14-1077		71-OSC	
L4	Input IF	21Ω	21Ω	750273A-1	16-6758	BC-352	12-C1	
L5	Output IF	21Ω	21Ω	750273A-1	16-6758	BC-353	12-C2	

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA: CAPEHART PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.057A	650150D-5	1003A	RS075	6S75	5M4	75	

BATTERIES

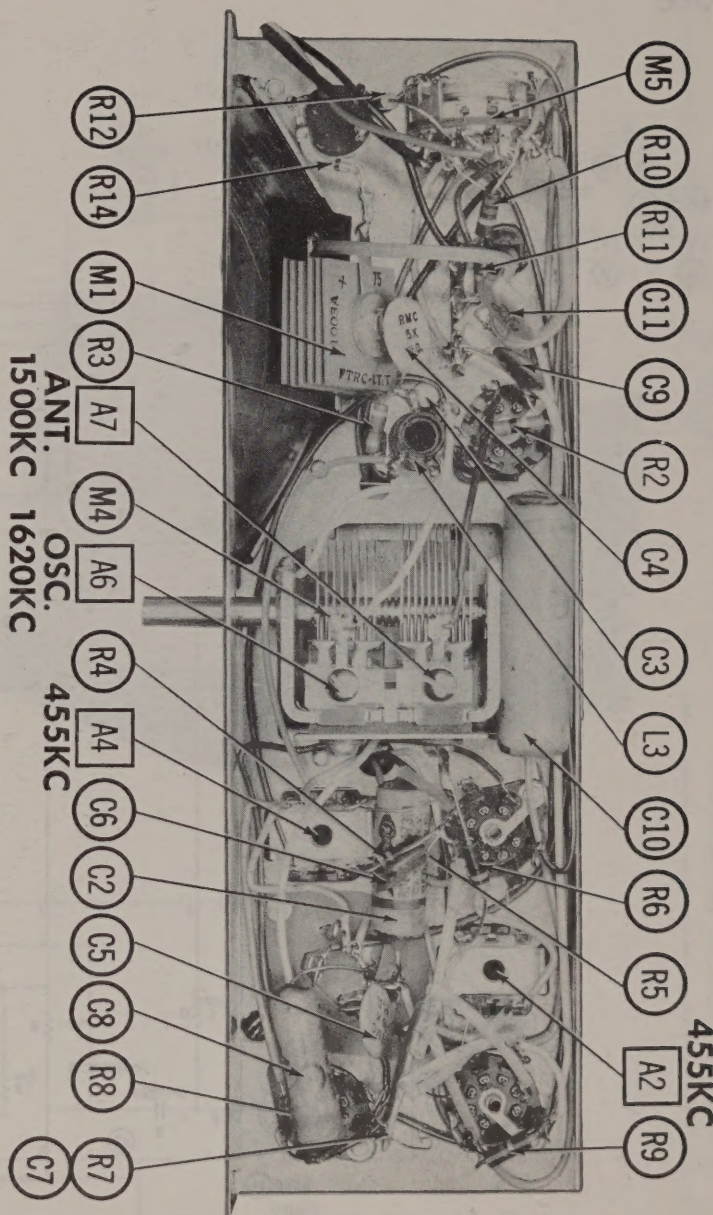
ITEM No.	VOLTAGE	CAPEHART PART No.	REPLACEMENT DATA: EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	BURGESS "A"	BURGESS "B"	BURGESS "A-B"	INSTALLATION NOTES
M2 M3	1.5V "A" 6.75V"B"		964	477		21R	P45		Connect 2 in series

MISCELLANEOUS

ITEM No.	PART NAME	CAPEHART PART No.	NOTES
M4	Tuning Cap.	650834B-1	2 Gang (21-290MMF, 11-100 MMF)
M5	Switch	650698A-2	Power Changeover (5 Pole - 2 Position; Rotary, Wafer Type.)
	Cabinet	950327C-G1	Dark Gray
	Cabinet	950327C-G3	Light Gray
	Handle	651063A-1	For Dark Gray Cabinet
	Handle	651063A-3	For Light Gray Cabinet
	Knob	750521A-1	Tuning
	Knob	454050A-1	On-Off-Volume

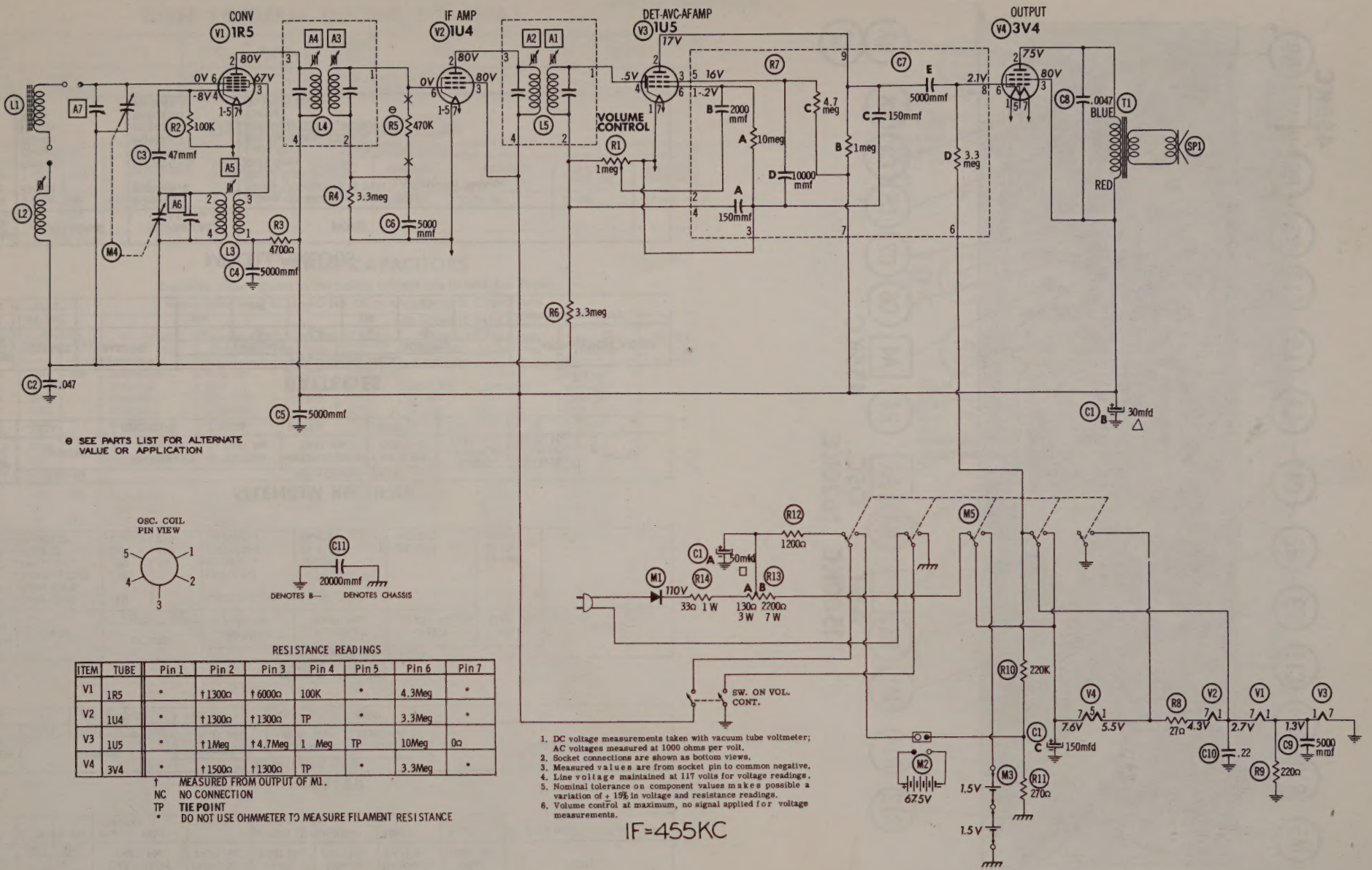
SET 330 FOLDER 2

CHASSIS—BOTTOM VIEW



CAPEHART MODEL 2P56 (Ch. CR218)

CAPEHART MODEL 2P56 (Ch. CR218)



⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

OSC. COIL PIN VIEW

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	1R5	•	†1300Ω	†6000Ω	100K	•	4.3Meg	•
V2	1U4	•	†1300Ω	†1300Ω	TP	•	3.3Meg	•
V3	1U5	•	†1Meg	†4.7Meg	1 Meg	TP	10Meg	0Ω
V4	3V4	•	†1500Ω	†1300Ω	TP	•	3.3Meg	•

† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION
TP TIE POINT
• DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

IF=455KC

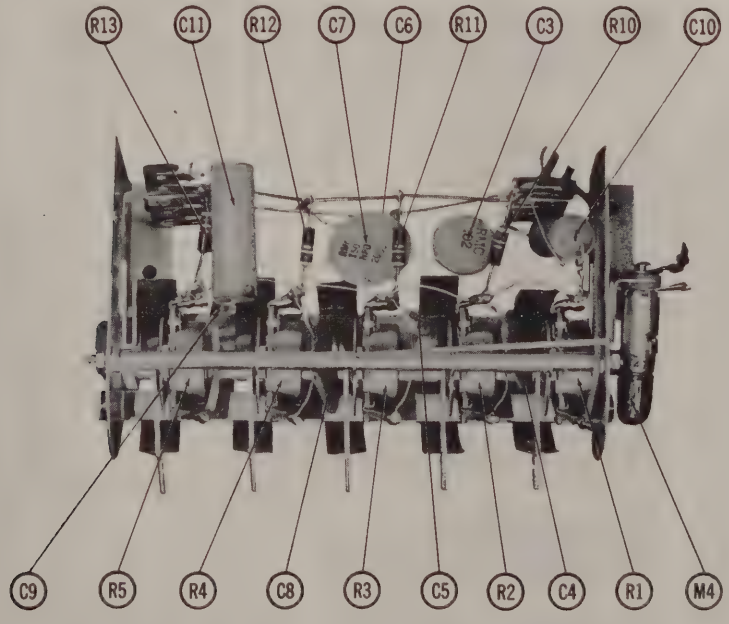
A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1956

CAPEHART MODELS
46TP56B, M (Ch. CA-239)

TRADE NAME	Capehart Models 46TP56B, 46TP56M (Ch. CA-239)
MANUFACTURER	Capehart-Farnsworth Corp., Fort Wayne 1, Ind.
TYPE SET	AC Operated Phono Amplifier With 3 Speed Automatic Record Changer
TUBES (FOUR)	Types 12AX7 Preamplifier - 1st AF Amplifier, 12AX7 2nd AF Amplifier - Phase Inverter, (2) 50L6GT Output
POWER SUPPLY	110-120 Volts AC - 60 Cycles RATING , 25 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE SIMILAR V-M MODEL 954B - PHOTOFACT SET 302 - FOLDER 12.



CONTROL CHASSIS

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1956 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

CAPEHART
MODEL 46TP56B (Ch. CA-239)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Preamp. -1st AF Amp.	12AX7	
V2	2nd AF Amp. - Phase Inverter	12AX7	
V3	Audio Output	50L6GT	
V4	Audio Output	50L6GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA CAPEHART PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲80	150	750090B-51		D001	FP311.7	TMQ-1	Q-005	
B	■50	150			BR2015	TC45	TD-20-150	MT-1520	
C	▲20	150							
D	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA CAPEHART PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.047	600	2248-4730	BPD-05	DF-503	CUB6S47		PT6147	6TM-S47	
C3	20000		450469A-10	BPD-02	DD-203	K085	817-02		5HK-S2	
C4	5000		450469A-12	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C5	800		450469A-22	BPD-0008	DD-801	K069	831-801	DC-521	5GA-T8	
C6	800		450469A-22	BPD-0008	DD-801	K069	831-801	DC-521	5GA-T8	
C7	150		2271-0235	NP0-DI150	TCZ-150	TZ34	NP0-334-151	ZT-5315	5TCC-T15	
C8	150		2271-0235	NP0-DI150	TCZ-150	TZ34	NP0-334-151	ZT-5315	5TCC-T15	
C9	47		2271-0223	NP0-DI47	TCZ-47	Z033	NP0-338-470	ZT-5447	5TCC-Q47	
C10	.047	200	2246-4730	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C11	.022	600	2248-2230	BPD-02	DD-203	CUB6S22	817-02	PT6122	6TM-S22	
C12	3000		450469A-21	BPD-003	DD-302	K076	811-003	UC-523	5HK-D3	
C13	20000		450469A-10	BPD-02	DD-203	K085	817-02		5HK-S2	
C14	20000		450469A-10	BPD-02	DD-203	K085	817-02		5HK-S2	
C15	20000		450469A-10	BPD-02	DD-203	K085	817-02		5HK-S2	
C16	10000		450469A-13	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C17	4.0	50	650663A-3							
C18	.047	600	2248-4730	BPD-05	DF-503	CUB6S47		PT6147	6TM-S47	

CONTROLS

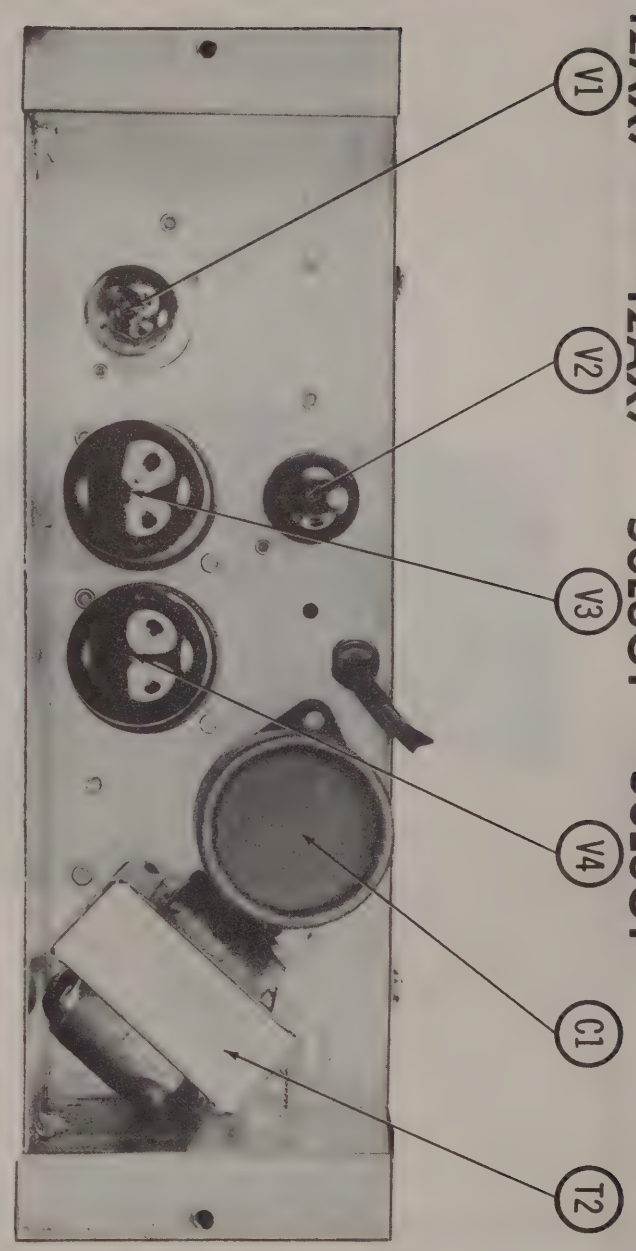
ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CAPEHART PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	1Meg	½	454120A-1					Volume-Tapped at 500K Stop at 500K
R2	1Meg	½	454120A-1					Low Bass-Tapped at 500K Stop at 500K
R3	1Meg	½	454120A-1					High Bass-Tapped at 500K Stop at 500K
R4	1Meg	½	454120A-1					Low Treble-Tapped at 500K Stop at 500K
R5	1Meg	½	454120A-1					High Treble-Tapped at 500K Stop at 500K

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA CAPEHART PART No.	IRC PART No.	NOTES
R6	1Meg		650262A-11	BTS-1Meg	
R7	1Meg		650262A-11	BTS-1Meg	
R8	100K		3230-104	BTS-100K	
R9	5600Ω		650262A-10	BTS-5600	
R10	470K		3229-474	BTS-470K	
R11	470K		3229-474	BTS-470K	
R12	470K		3229-474	BTS-470K	
R13	470K		3229-474	BTS-470K	
R14	470K		3229-474	BTS-470K	
R15	220K		3229-224	BTS-220K	
R16	10K		3229-103	BTS-10K	
R17	470K		3229-474	BTS-470K	
R18	220K		3229-224	BTS-220K	
R19	4700Ω		3229-472	BTS-4700	
R20	220K		3229-224	BTS-220K	
R21	10K		3229-103	BTS-10K	
R22	470K		3229-474	BTS-470K	
R23	47K		3229-473	BTS-47K	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CAPEHART PART No.	IRC PART No.	
R24	470K		3229-474	BTS-470K	
R25	2200Ω		3230-222	BTS-2200	
R26	180Ω	2	3235-181	BTB-180	
R27	10K		3229-103	BTS-10K	
R28	10K		3229-103	BTS-10K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CAPEHART PART No.	IRC PART No.	
R29	10K		3229-103	BTS-10K	
R30	100Ω	2	3235-101	BTB-100	
R31	33Ω	2	65010IA-43		
R32	220K		3229-224	BTS-220K	

TRANSFORMER (FILAMENT)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	CAPEHART PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC	6.3VAC ②.150A			651169A-1			PS8415①②	21F08 ①	F-13X ①

① Drill one new mounting hole.
② Tape 125V secondary winding.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	CAPEHART PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5.7KΩ	3.3Ω	651171A-1	Z1007	A-2904	A-3823	26S46	S-53X	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	CAPEHART PART No.	QUAM PART No.	RCA TYPE No.	
SP1	6"	PM	3-4Ω	750548A-2	6A15	224S1	
SP2	6"	PM	3-4Ω	750548A-1	6A15	224S1	
SP3	3 1/2"	PM	3-4Ω	750756A-1	3A15Z3.2		

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	CAPEHART PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.058A	650150D-9	1005A	RS100	6S150	5M1	150	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	CAPEHART PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M2				46-T	0-1 or S-1 and 0-3	

ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

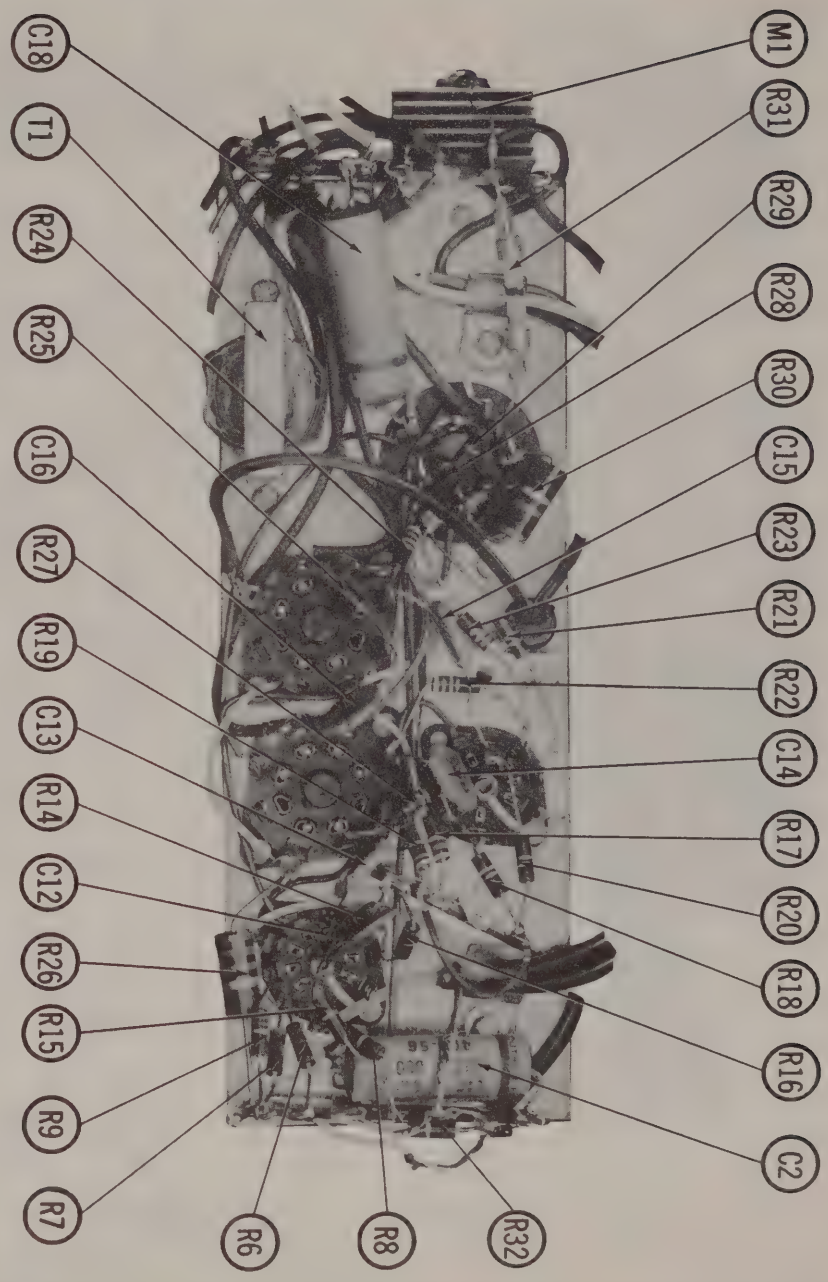
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA				REMARKS
	CAPEHART PART No.	FIDELITONE PART No.	JENSEN PART No.	WALCO PART No.	
M3		†C-143 or ♦C-143D and †A-142 or ♦A-142D	†CR-55 or ♦CR-55D and †CR-55LP or ♦CR-55LPD	†W-648 or ♦W-64D and †W-64MGS or ♦W64MGD	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	CAPEHART PART No.	NOTES
M4	Pilot Light	600093A-8	#47
	Knob	650995A-2	Control (5 Used)

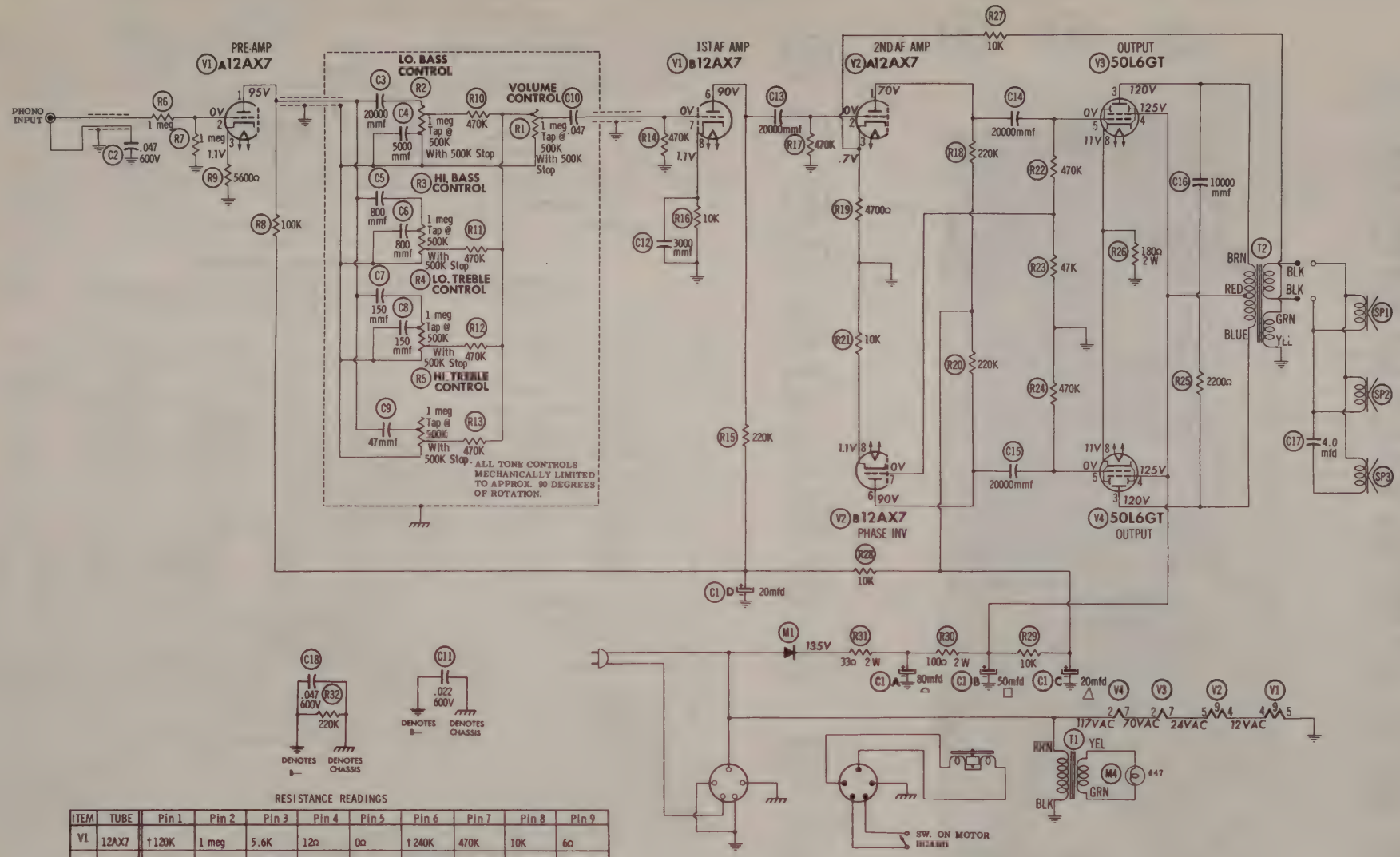
CHASSIS—BOTTOM VIEW



SET 330 FOLDER 3

CAPEHART MODEL 46TP56B (Ch. CA-239)

CAPEHART MODEL 46TP56B (Ch. CA-239)



RESISTANCE READINGS

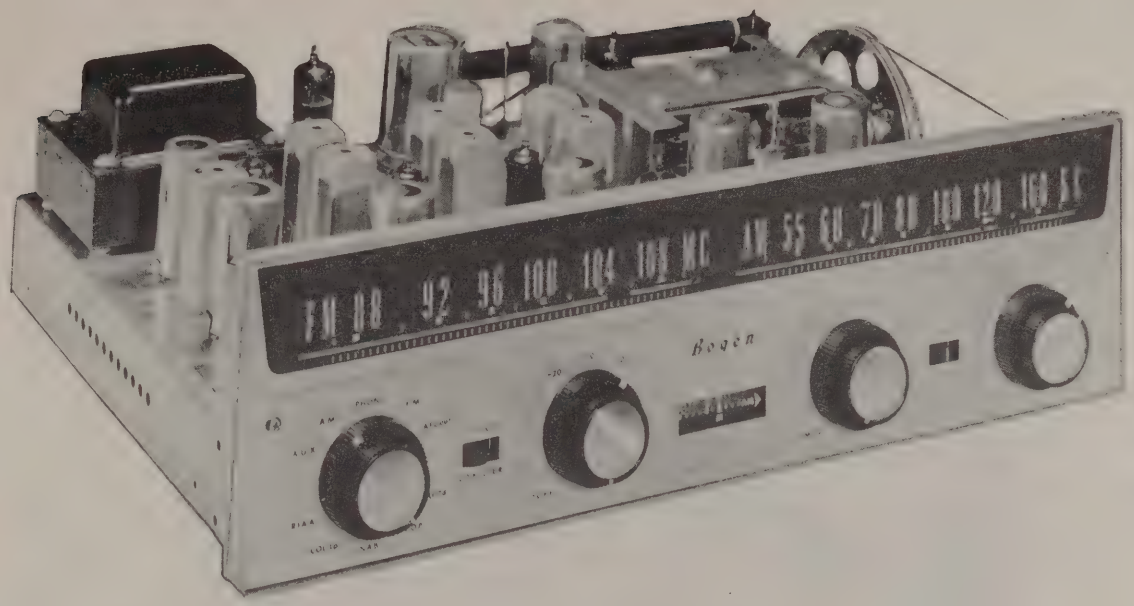
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†120K	1 meg	5.6K	12Ω	0Ω	†240K	470K	10K	6Ω
V2	12AX7	†230K	470K	4.7K	12Ω	24Ω	†230K	47K	10K	18Ω
V3	50L6GT	NC	74Ω	†300Ω	†133Ω	520K	TP	24Ω	180Ω	
V4	50L6GT	NC	124Ω	†300Ω	†133Ω	470K	TP	74Ω	180Ω	

ALL MEASUREMENTS TAKEN WITH PHONO MOTOR DISCONNECTED
† MEASURED FROM OUTPUT OF M1 (SELENIUM RECTIFIER).
NC - NO CONNECTION
TP - TIE POINT

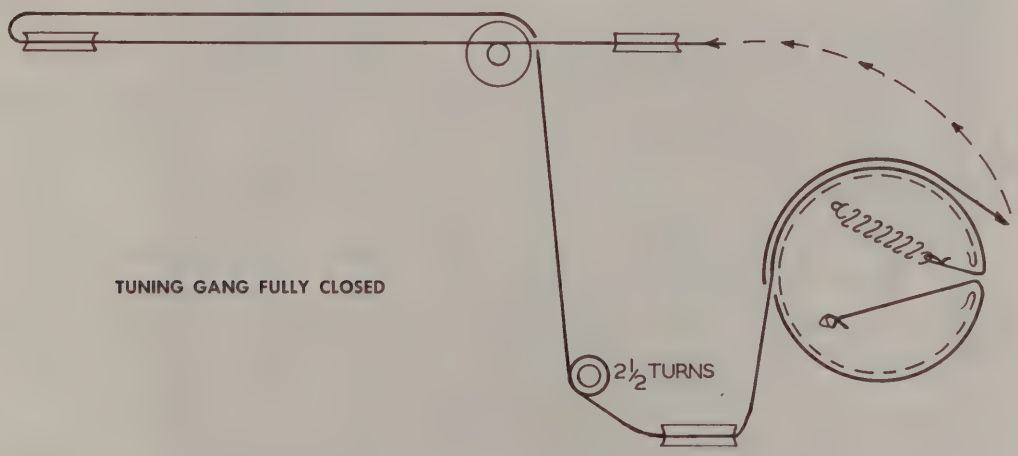
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1956

DAVID BOGEN
MODEL R710



TRADE NAME	David Bogen Model R710
MANUFACTURER	David Bogen Co., Inc., 29 Ninth Ave., New York 14, N.Y.
TYPE SET	AC Operated FM-AM Superheterodyne Tuner
TUBES	Twelve
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .54 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	530KC-1650KC FREQ.MOD. 88MC-108MC



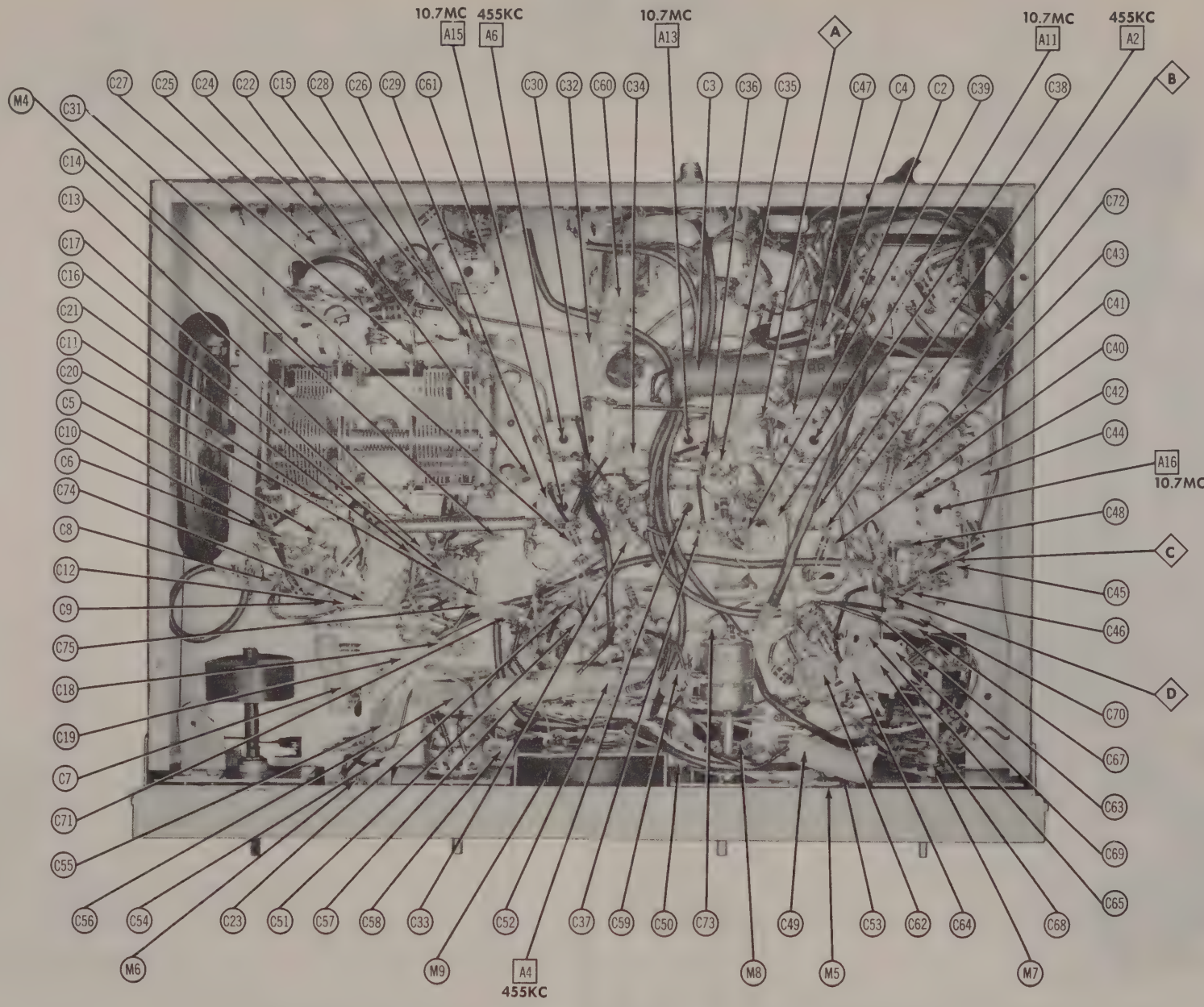
DIAL CORD STRINGING

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

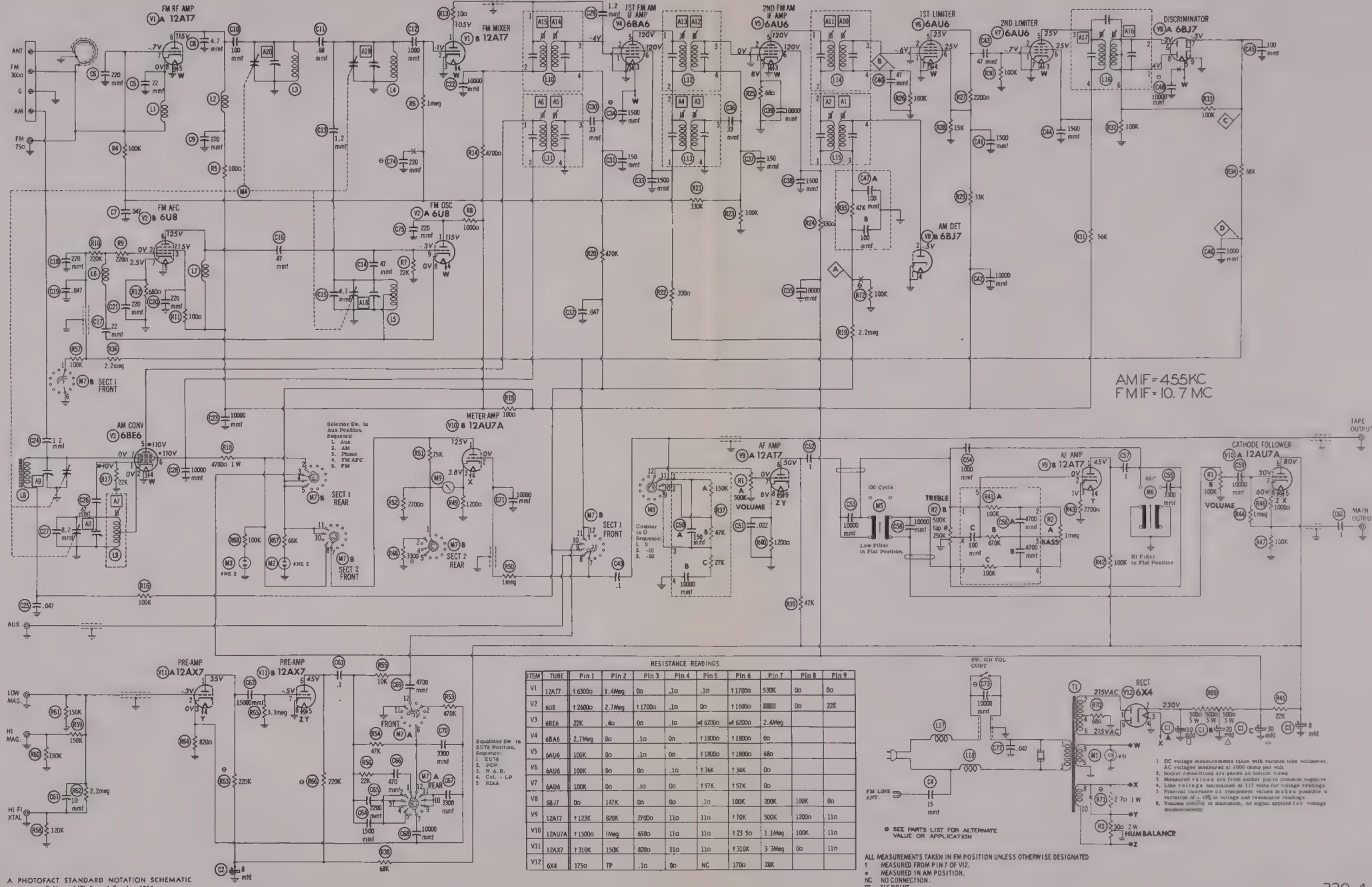
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1956 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

G493

DATE 9-56 SET 330 FOLDER 4



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION


FM RF AMP V1A 12AT7
FM MIXER V1B 12AT7
1ST FM AM IF AMP V4 6BA6
2ND FM AM IF AMP V5 6AU6
1ST LIMITER V6 6AU6
2ND LIMITER V7 6AU6
DISCRIMINATOR V8A 6BJ7
FM AFC V2B 6U8
FM OSC V2A 6U8
AM DET V8B 6BJ7
AM IF = 455KC
FM IF = 10.7 MC
AM CONV V3 6BE6
METER AMP V10B 12AU7A
AF AMP V9A 12AT7
AF AMP V9B 12AT7
CATHODE FOLLOWER V10A 12AU7A
TAPE OUTPUT
MAIN OUTPUT
VOLUME
TREBLE
BASS
100 Cycle
Low Filter in Flat Position.
Hi Filter in Flat Position
SECT 1 FRONT
SECT 1 REAR
SECT 2 FRONT
SECT 2 REAR
Selector Sw. in Aux Position. Sequence: 1. Aux 2. AM 3. Phono 4. FM AFC 5. FM
Contour in O Sequence: 1. 0 2. -10 3. -30
Equalizer Sw. in EUT6 Position. Sequence: 1. EUT6 2. POP 3. N.A.B. 4. Col. - LP 5. RIAA
PRE-AMP V11A 12AX7
PRE-AMP V11B 12AX7
SW. ON VOL CONT
RECT V12 6X4
HUMBALANCE
FM LINE ANT.
AUX
LOW MAG.
HI MAG.
HI FI XTAL

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AT7	↑6300Ω	1.4Meg	0Ω	.1Ω	.1Ω	↑1700Ω	530K	0Ω	0Ω
V2	6U8	↑2600Ω	2.7Meg	↑1700Ω	.1Ω	0Ω	↑1600Ω	[illegible]	0Ω	22K
V3	6BE6	22K	.4Ω	0Ω	.1Ω	⇄ 6200Ω	⇄ 6200Ω	2.4Meg		
V4	6BA6	2.7Meg	0Ω	.1Ω	0Ω	↑1800Ω	↑1800Ω	0Ω		
V5	6AU6	100K	0Ω	.1Ω	0Ω	↑1800Ω	↑1800Ω	68Ω		
V6	6AU6	100K	0Ω	0Ω	.1Ω	↑36K	↑34K	0Ω		
V7	6AU6	100K	0Ω	.1Ω	0Ω	↑57K	↑57K	0Ω		
V8	6BJ7	0Ω	147K	0Ω	0Ω	.1Ω	100K	200K	100K	0Ω
V9	12AT7	↑123K	820K	2700Ω	11Ω	11Ω	↑70K	500K	1200Ω	11Ω
V10	12AU7A	↑1500Ω	1Meg	650Ω	11Ω	11Ω	↑23.5Ω	1.1Meg	100K	11Ω
V11	12AX7	↑310K	150K	820Ω	11Ω	11Ω	↑310K	3.3Meg	0Ω	11Ω
V12	6X4	175Ω	TP	.1Ω	0Ω	NC	170Ω	28K		

RESISTANCE READINGS

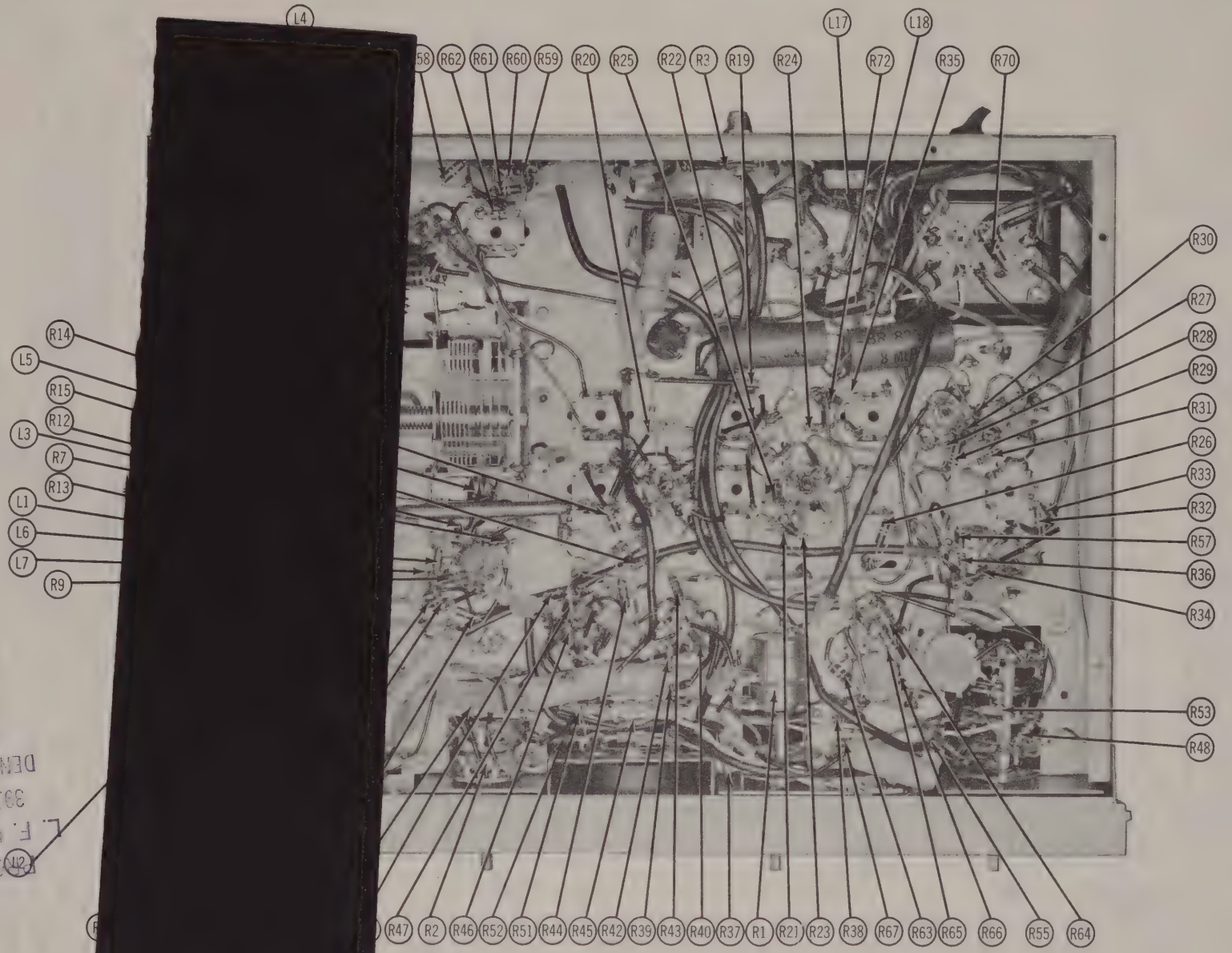
ALL MEASUREMENTS TAKEN IN FM POSITION UNLESS OTHERWISE DESIGNATED
↑ MEASURED FROM PIN 7 OF V12.
• MEASURED IN AM POSITION.
NC NO CONNECTION.
TP TIE POINT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

330-4

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1956



S BOTTOM VIEW-RESISTOR IDENTIFICATION

DAVID BOGEN
MODEL R710

PROPERTY OF
L. F. BLANKENSHIP
3624 INTAGE ST.
DENVER, COLORADO

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary ot obtain an output reading.
Use an insulated alignment screwdriver for adjusting.
Allow 15 minute warm-up period for receiver and equipment.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 6BE6 (V3). Low side to chassis.	455KC (400%Mod)	AM	Tuning gang fully open	DC probe to point A . Common to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum deflection.
2.	Direct	High side to AM antenna terminal. Low side to chassis.	600KC	"	600KC	"	A7	"
3.	"	"	1500KC	"	1500KC	"	A8, A9	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to pin 2 (grid) of 12AT7 (V1). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe thru 100K to point . Common to chassis	A10,A11, A12,A13 A14,A15	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe thru 100K to point C . Common to chassis.	A16	"
6.	"	"	"	"	"	DC probe thru 100K to point D Common to chassis.	A17	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD	High side to pin 2 (grid) of 12AT7 (V1). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. thru 100K to point B . Low side to chassis.	A10,A11, A12,A13 A14,A15	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. Amp. thru 100K to point C . Low side to chassis.	A16	"
6.	"	"	"	"	"	Vert. Amp. thru 100K to point D . Low side to chassis.	A17	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A16 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

DUMMY	SIGNAL GENERATOR	SIGNAL	BAND	RADIO	CONNECT

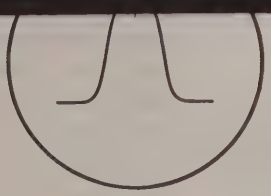


FIG. 1

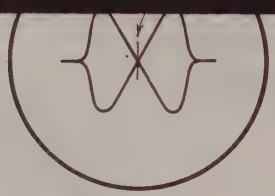


FIG. 2

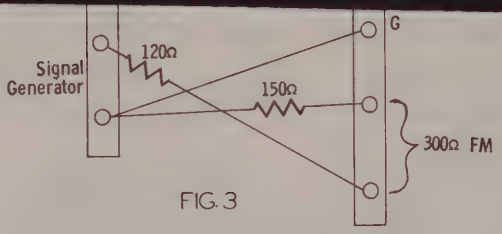


FIG. 3

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amplifier-FM Mixer	12AT7	
V2	FM Oscillator-AFC	6U8	
V3	AM Converter	6BE6	
V4	1st. IF Amplifier	6BA6	
V5	2nd. IF Amplifier	6AU6	
V6	1st. Limiter	6AU6	
V7	2nd. Limiter	6AU6	

ITEM No.	USE	TYPE	NOTES
V8	Discriminator-AM Det.-AVC	6BJ7	
V9	AF Amplifier	12AT7	
V10	Meter Amp.-Cathode Follower	12AU7A	
V11	Preamplifier	12AX7	
V12	Rectifier	6X4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA David Bogen PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■10	350		AFH3-153-30	D042	FP343.6	TMQ-11	Q-035	R2278 *
B	▲20	350					TD-12-350	FM-3512	
C	●30	350							
C2	8	250		PRS250V8	BR825	TC51	TD-8-250	FM-2508	TVA-1503
C3	8	250		PRS250V8	BR825	TC51	TD-8-250	FM-2508	TVA-1503

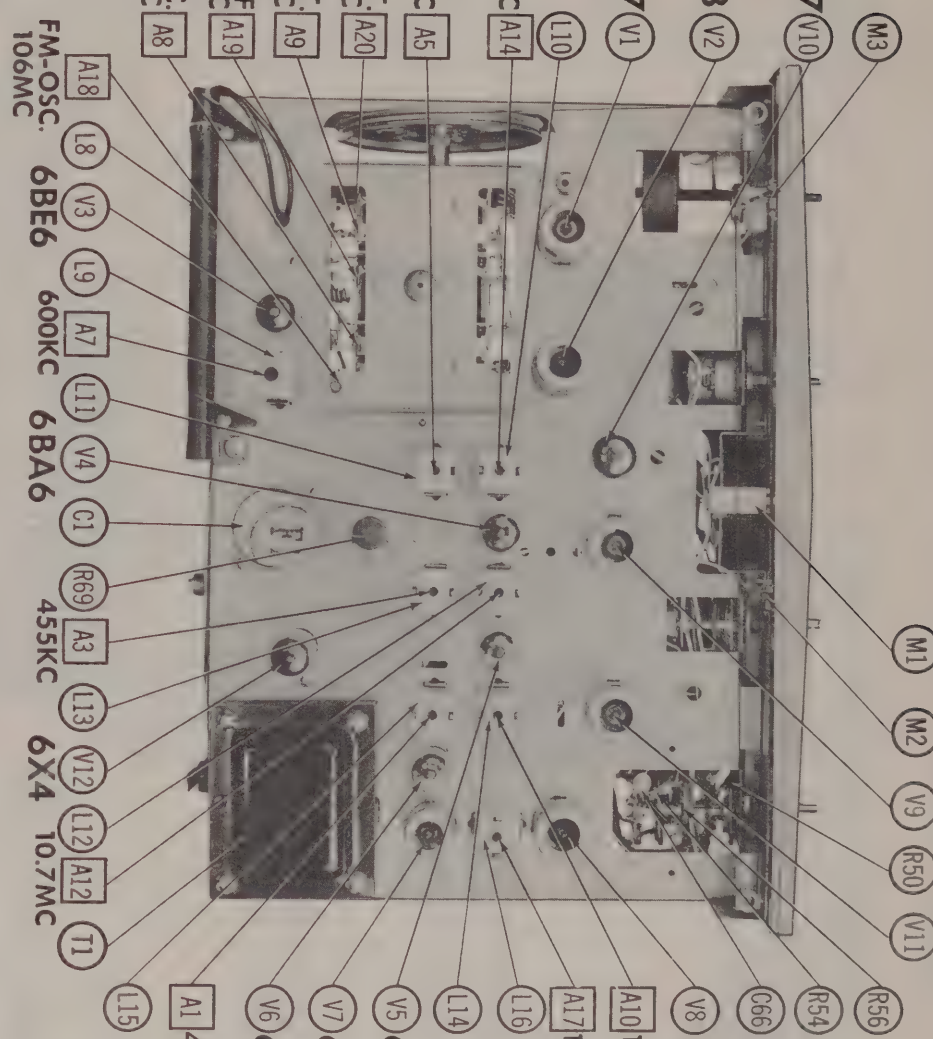
* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA David Bogen PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	15			DI-000015	DD-150	G021	831-150	UC-5415	5GA-Q15	
C5	22			DI-000022	D6-220	G024	831-220	UC-5422	5GA-Q22	
C6	220			DI-00022	DD-221	G051	811-221	UC-5322	5GA-T22	
C7	.047	200		BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C8	4.7						N330A-4R7			
C9	220			DI-00022	DD-221	G051	811-221	UC-5322	5GA-T22	
C10	100			DI-0001	DD-101	G042	801-101	UC-531	5GA-T1	
C11	.68				TCZ-R68	TZ02	NP0A-0R68			
C12	1000			DI-001	DD-102	G069	811-102	DC-521	5GA-D1	
C13	1.2									
C14	47			N750-DI47	TCN-47	N033	N750K-470	NT-5447	5TCU-Q47	
C15	4.7						N330A-4R7			
C16	47			N750-DI47	TCN-47	N033	N750K-470	NT-5447	5TCU-Q47	
C17	22			DI-000022	D6-220	G024	831-220	UC-5422	5GA-Q22	
C18	220			DI-00022	DD-221	G051	811-221	UC-5322	5GA-T22	
C19	.047	200		BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C20	220			DI-00022	DD-221	G051	811-221	UC-5322	5GA-T22	
C21	220			DI-00022	DD-221	G051	811-221	UC-5322	5GA-T22	
C22	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C23	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C24	1.2									
C25	.047	200		BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C26	47			N750-DI47	TCN-47	N033	N750K-470	NT-5447	5TCU-Q47	
C27	8.2			NP0-DI8.2		Z016	NP0A-8R2			
C28	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C29	1.2									
C30	33			DI-000033	DD-330	G029	831-330	UC-5433	5GA-Q33	
C31	150			DI-00015	DD-151	G046	811-151	UC-5315	5GA-T15	
C32	.047	200		BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C33	1500			DI-0015	DD-152	G071	811-152	DC-5215	5GA-D15	
C34	1500			DI-0015	DD-152	G071	811-152	DC-5215	5GA-D15	Note 1
C35	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C36	33			DI-000033	DD-330	G029	831-330	UC-5433	5GA-Q33	
C37	150			DI-00015	DD-151	G046	831-151	UC-5315	5GA-T15	
C38	1500			DI-0015	DD-152	G071	811-152	DC-5215	5GA-D15	
C39	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C40	47			N750-DI47	TCN-47	N033	N750K-470	NT-5447	5TCU-Q47	
C41	1500			DI-0015	DD-152	G071	811-152	DC-5215	5GA-D15	
C42	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C43	47			N750-DI47	TCN-47	N033	N750K-470	NT-5447	5TCU-Q47	
C44	1500			DI-0015	DD-152	G071	811-152	DC-5215	5GA-D15	
C45	100			DI-0001	DD-101	G042	801-101	UC-531	5GA-T15	
C46	1000			DI-001	DD-102	G069	811-102	DC-521	5GA-D1	
C47A	100			†PA-97-1	†PC-50	†111TM1	†1403-01	UC-531	†D-1	
B	100							UC-531		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	David Bogen PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C48	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	Note 1
C49	.1	200		P288N-1	DF-104	CUB2P1		PT401	2TM-P1	
C50A	150	♦							♦102C26	
B	10000									
C51	.022	200		BPD-02	DF-203	CUB4S22	817-02	PT4022	2TM-S22	
C52	.1	200		P288N-1	DF-104	CUB2P1		PT401	2TM-P1	
C53	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C54	1000			DI-001	DD-102	G069	811-102	DC-521	5GA-D1	
C55	3300			DI-0033	D6-332	K077	811-0033	UC-5233	5GA-D33	
C56A	4700	‡								
B	4700									
C	100									
C57	.1	200		P288N-1	DF-104	CUB2P1		PT401	2TM-P1	
C58	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C59	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C60	.1	200		P288N-1	DF-104	CUB2P1		PT401	2TM-P1	
C61	10				TCA-10		N330A-100			
C62	15000			BPD-015	DD16-153	CUB6S15	821-015	PT6115	5HK-S15	
C63	.1	200		P288N-1	DF-104	CUB2P1		PT401	2TM-P1	
C64	1500			DI-0015	DD-152	G071	811-152	DC-5215	5GA-D15	
C65	2200			DI-0022	D6-222	TP58	811-0022	UC-5222	5GA-D22	
C66	470			DI-00047	DD-471	G060	811-471	UC-5347	5GA-T47	
C67	3300			DI-0033	D6-332	K077	811-0033	UC-5233	5GA-D33	
C68	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C69	4700			DI-0047	DD-472	K079	811-0047	UC-5247	5GA-D47	
C70	3300			DI-0033	D6-332	K077	811-0033	UC-5233	5GA-D33	
C71	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C72	.047	600		BPD-05	DF-503	CUB6S47		PT6147	6TM-S47	
C73	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	Note 1
C74	220			DI-00022	DD-221	G051	811-221	UC-5322	5GA-T22	Note 1
C75	220			DI-00022	DD-221	G051	811-221	UC-5322	5GA-T22	

Note 1. Not used in some versions.
† Items C47A, C47B and R35 are combined in one unit.
♦ Items C50A, C50B, R37A, R37B and R37C are combined in one unit.
‡ Items C56A, C56B, C56C, R41A, R41B and R41C are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	David Bogen PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½				Q13-133		Volume
B	100K	½				M13-128		Volume
C	Shaft					RQ		
D	Switch						76-1	
R2A	1Meg	½	V371A	F1-51			UF16L	Bass -panel
B	500K	½		R2-46			UR55-T254	Treble-rear-tapped ⓐ250K
R3A	50Ω	2	V113		A43-50	WPK50	C50P	Hum Balance-wire wound
B	Shaft		Not Req.		FKS-1/4	Not Req.	Not Req.	Attach to R3A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	David Bogen PART No.	IRC PART No.	NOTES
R4	100K			BTS-100K	
R5	100Ω			BTS-100	
R6	1Meg			BTS-1Meg	
R7	22K			BTS-22K	
R8	1000Ω			BTS-1000	
R9	220Ω			BTS-220	
R10	220K			BTS-220K	
R11	100Ω			BTS-100	
R12	680Ω			BTS-680	
R13	10Ω			BTS-10	
R14	4700Ω			BTS-4700	
R15	100Ω			BTS-100	
R16	100K			BTS-100K	
R17	22K			BTS-22K	
R18	4700Ω	1		BTA-4700	
R19	2.2Meg			BTS-2.2Meg	
R20	470K			BTS-470K	
R21	330K			BTS-330K	

ITEM No.	RATING OHMS	RATING WATT	David Bogen PART No.	IRC PART No.	NOTES
R22	330Ω			BTS-330	
R23	100K			BTS-100K	
R24	330Ω			BTS-330	
R25	68Ω			BTS-68	
R26	100K			BTS-100K	
R27	2200Ω			BTS-2200	
R28	15K			BTS-15K	
R29	33K			BTS-33K	
R30	100K			BTS-100K	
R31	56K			BTS-56K	
R32	100K			BTS-100K	
R33	100K			BTS-100K	
R34	68K			BTS-68K	
R35	47K		†	BTS-47K	
R36	2.2Meg			BTS-2.2Meg	
R37A	150K			BTS-150K	
B	47K		♦	BTS-47K	
C	27K			BTS-27K	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	David Bogen PART No.	IRC PART No.	NOTES
R38	68K			BTS-68K	
R39	47K			BTS-47K	
R40	1200Ω 5%			BTS-1200	
R41A	100K			BTS-100K	
B	470K		‡	BTS-470K	
C	100K			BTS-100K	
R42	100K			BTS-100K	
R43	2700Ω 5%			BTS-2700	
R44	1Meg			BTS-1Meg	
R45	22K			BTS-22K	
R46	1000Ω			BTS-1000	
R47	100K			BTS-100K	
R48	3300Ω			BTS-3300	Note 1
R49	1200Ω 5%			BTS-1200 5%	
R50	1Meg			BTS-1Meg	
R51	75K 5%			BTS-75K 5%	
R52	2700Ω 5%			BTS-2700 5%	
R53	470K			BTS-470K	
R54	47K			BTS-47K	

ITEM No.	RATING OHMS	RATING WATT	David Bogen PART No.	IRC PART No.	NOTES
R55	10K			BTS-10K	
R56	22K			BTS-22K	
R57	100K			BTS-100K	
R58	120K			BTS-120K	
R59	150K			BTS-150K	
R60	150K			BTS-150K	
R61	150K			BTS-150K	
R62	2.2Meg			BTS-2.2Meg	
R63	220K			MBC-220K	Note 2
R64	820Ω			BTS-820	
R65	3.3Meg			BTS-3.3Meg	
R66	220K			MBC-220K	Note 2
R67	68K			BTS-68K	
R68	100K			BTS-100K	
R69A	500Ω	5		PW7-500	
B	500Ω	5		PW7-500	
C	500Ω	5		PW7-500	
R70	68Ω			BTS-68	
R71	2.7Ω	1		BW1-2.7	Note 3
R72	100K			BTS-100K	Note 3

† Items R35, C47A, C47B are combined in one unit.
♦ Items R37A, R37B, R37C C50A, C50B are combined in one unit.
‡ Items R41A, R41B, R41C, C56A, C56B, C56C are combined in one unit.
Note 1. Some versions use a 3900Ω resistor in this application.
Note 2. Low noise deposited carbon type resistor.
Note 3. Not used in some versions.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	David Bogen PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ⓐ.54A	440VCT ⓐ.068A	6.3VAC ⓐ3.7A	5VAC ⓐ.86A	T3138			P-8155		

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	David Bogen PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	RF Coil	0Ω		U436				
L2	RF Choke	0Ω		U420				1.7 Microhenries
L3	FM Ant. Coil	0Ω		U433				
L4	FM RF Coil	0Ω		U434				
L5	FM Osc. Coil	0Ω		U435				Tapped
L6	Cathode Choke	0Ω		U432	19-1000		4602	1.1 Microhenries
L7	RF Choke	3Ω		U507				3.3 Microhenries, IRC part #CLA
L8	AM Loop Stick	.5Ω		H452A				
L9	AM Osc. Coil	3.9Ω		H454				Tapped ⓐ .4Ω
L10	1st. FM IF	.6Ω	.6Ω	H355	16-3487	FM-254	1463	
L11	1st. AM IF	17Ω	17Ω	H297	16-6758	BC-352	12-C1	
L12	2nd. FM IF	.6Ω	.6Ω	H355	16-3487	FM-254	1463	
L13	2nd. AM IF	17Ω	17Ω	H297	16-6758	BC-352	12-C1	
L14	3rd. FM IF	.6Ω	.6Ω	H355	16-3487	FM-254	1463	
L15	3rd. AM IF	17Ω	17Ω	H297	16-6758	BC-353	12-C2	
L16	Discriminator	.6Ω	.8ΩCT	H295	17-3494	FM-253	1464	
L17	Line Choke	0Ω		U512				
L18	Line Choke	0Ω		U512				

MISCELLANEOUS

ITEM No.	PART NAME	David Bogen PART No.	NOTES
M1	Dial Light		#51
M2	Neon Light		#NE2 (FM Dial Pointer)
M3	Neon Light		#NE2 (AM Dial Pointer)
M4	Tuning cap.	C635	5 Gang (AM Sections: 26-535MMF, 24-195MMF)
M5	Switch	S381	Lo Filter (DPDT-Slide type)
M6	Switch	S381	Hi Filter (DPDT- Slide Type)
M7A	Switch	S449B	Equalizer (Rotary, wafer type)
B	Switch		Selector (Rotary, wafer type)
M8	Switch	S351B	Contour (SP - 3 position, rotary, wafer type)
M9	Meter	H453	Tuning

PHOTOFACT* Folder

*TRADE MARK

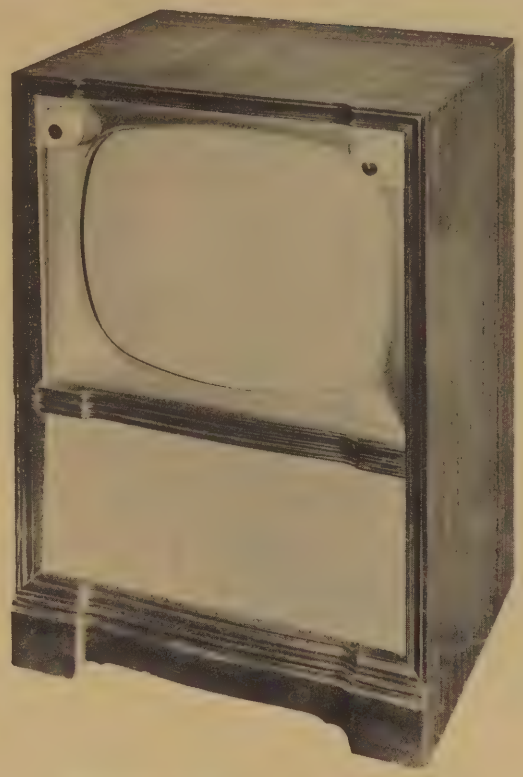
RETMA MEMBER

FIRESTONE MODELS 13-G-201, 13-G-202, 13-G-203, 13-G-204, 13-G-205, 13-G-206 (Codes 334-5-A61C/A, 334-5-A61U/A)

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . unless it has been purchased as part of a complete volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



FIRESTONE MODEL 13-G-203

TRADE NAME	Firestone	MODELS	CODES
		13-G-201, 13-G-202, 13-G-203, 13-G-204, 13-G-205, 13-G-206	334-5-A61C/A & 334-5-A61U/A
SUPPLIER	Firestone Tire & Rubber Co., 1200 Firestone Pkwy., Akron, Ohio		
TYPE SET	Television Receiver		
TUBES	Twenty		
POWER SUPPLY	110-120 Volts AC-60 Cycle	RATING 1.7 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

INDEX

Alignment Instructions 6, 7

Disassembly Instructions 1

Horizontal Sweep Circuit Adjustments 16

Parts List and Descriptions ..... 11 thru 14

Photographs

- Cabinet-Rear View 16
- Capacitor & Alignment Identification 3, 10
- Chassis-Top View 7
- RF Tuner 15

Photographs (Cont)

- Resistor & Inductor Identification 4, 9

Resistance Measurements 8

Servicing in the Field 1

Schematic (Alternate Tuner) 14

Schematic (TV) 2

Tube Failure Check Chart 5

Tube Placement Chart (Bottom View) 8

Tube Placement Chart (Top View) 5

FIRESTONE MODELS 13-G-201, 13-G-202, 13-G-203, 13-G-204, 13-G-205, 13-G-206 (Codes 334-5-A61C/A, 334-5-A61U/A)

PROPERTY OF
L. F. BLANKENSHIP
3914 MEADE ST.
DENVER, COLORADO

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1956 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PHOTOFACT* Folder
*TRADE MARK

FIRESTONE MODELS 13-G-201, 13-G-202, 13-G-203, 13-G-204, 13-G-205, 13-G-206 (Codes 334-5-A61C/A, 334-5-A61U/A)

FIRESTONE MODELS 13-G-201, 13-G-202, 13-G-203, 13-G-204, 13-G-205, 13-G-206 (Codes 334-5-A61C/A, 334-5-A61U/A)

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 7 push-on type control knobs from front panel.

2. Remove 5 wood screws and 1 metal screw. Remove rear cover.

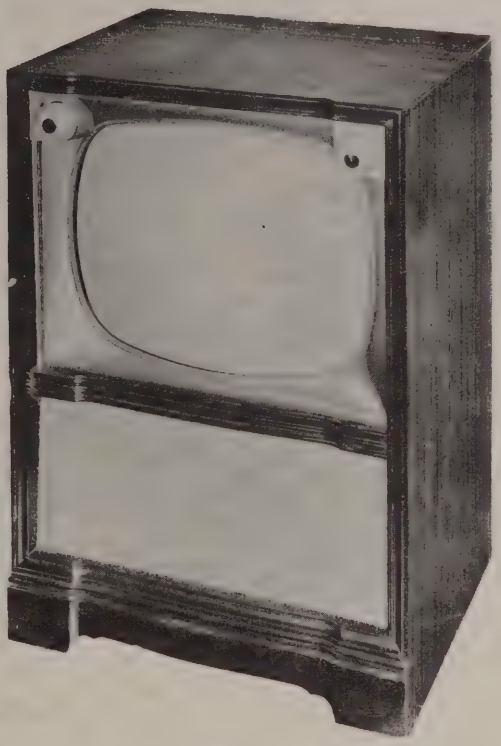
3. Disconnect speaker leads.

4. Remove 2 wood screws holding antenna terminal bracket.

5. Remove 6 chassis mounting board bolts holding chassis mounting board to cabinet, and 2 wood screws from 2 brackets at top of cabinet.

6. Slide chassis with mounting board from cabinet.

7. Remove 4 speed nuts. Remove speaker.



Model
13-G-203

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removing the channel selector and fine tuning knobs.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 7 push-on type control knobs from front panel of cabinet. Remove 2 metal screws from each cover escutcheon panel. Remove panels and safety glass. Use extreme caution when removing safety glass.

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 5.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Set the horizontal hold control at the center of its range and adjust the horizontal frequency slug (L27) until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, it is necessary to remove the rear cover and supply power to the chassis. Adjust the buzz control (R10) for maximum sound and MINIMUM buzz.

FUSES

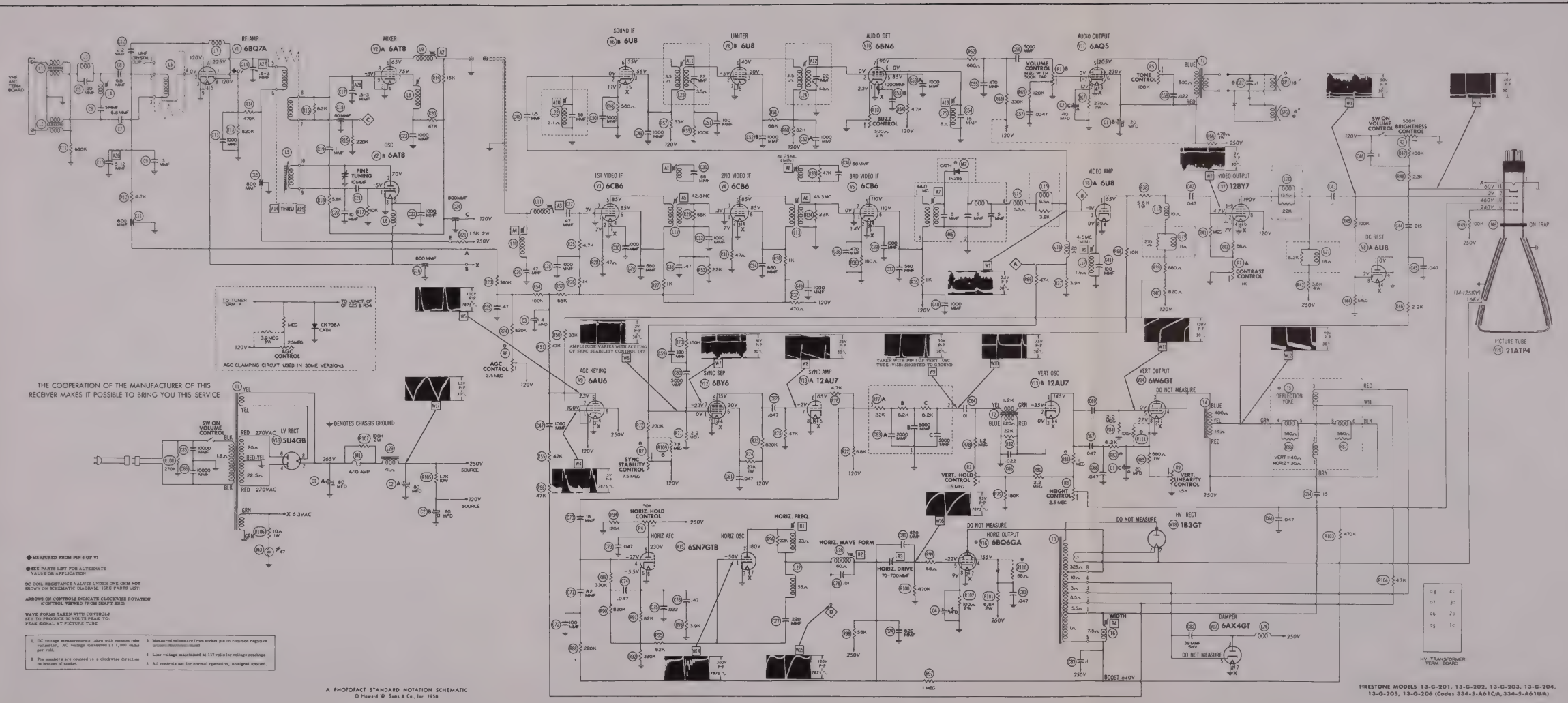
One fuse is used for LV power supply protection. (For location see tube placement chart).

CENTERING

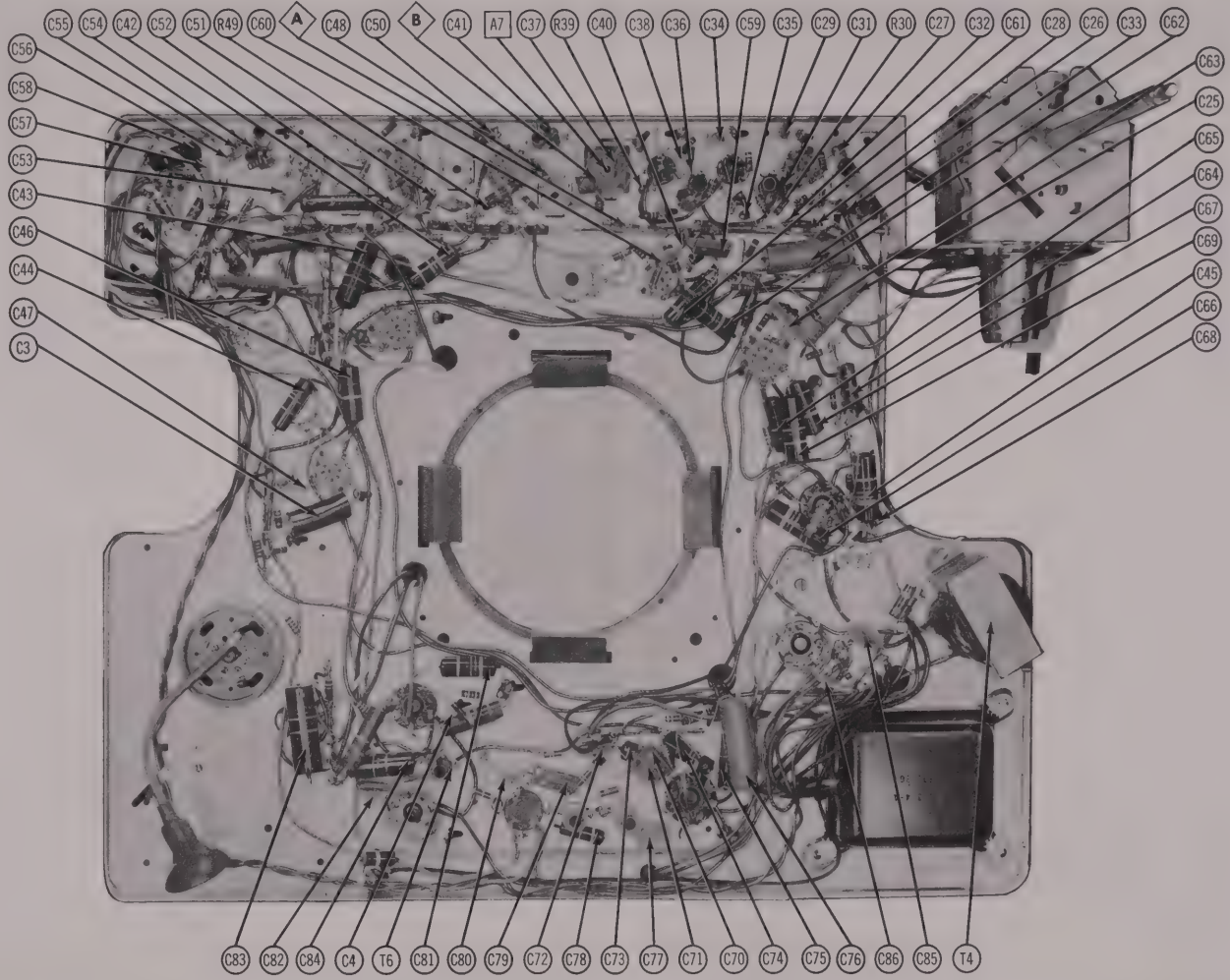
Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

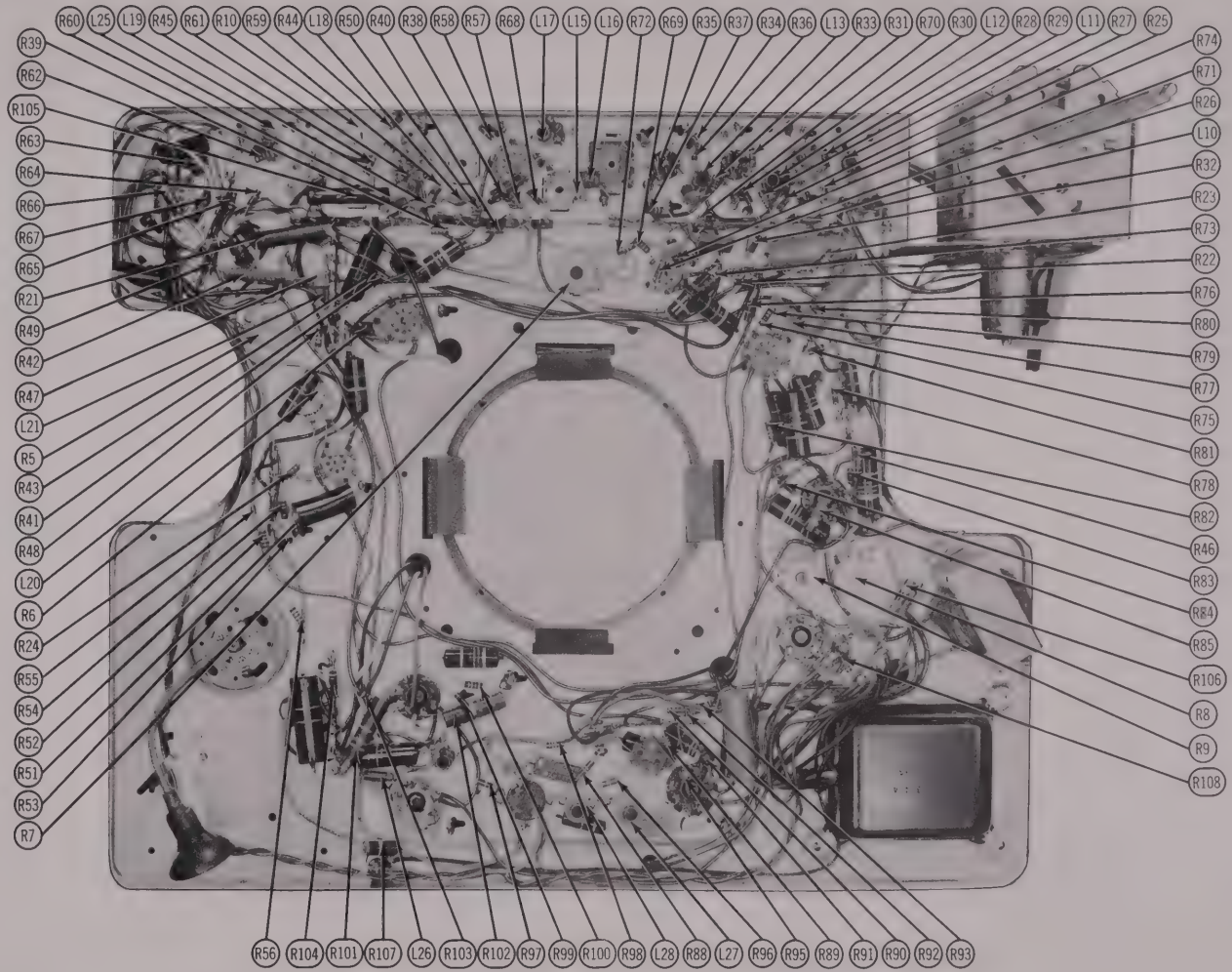
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1956 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America


RF AMP V1 6BQ7A
MIXER V2 A 6AT8
OSC V2 B 6AT8
SOUND IF V6 B 6U8
LIMITER V10 B 6U8
AUDIO DET V10 B 6BN6
AUDIO OUTPUT V11 6AQ5
1ST VIDEO IF V3 6CB6
2ND VIDEO IF V4 6CB6
3RD VIDEO IF V5 6CB6
VIDEO AMP V8 A 6U8
VIDEO OUTPUT V7 12BY7
DC REST V8 A 6U8
AGC KEYING V9 6AU6
SYNC SEP V17 6BY6
SYNC AMP V13 A 12AU7
VERT OSC V13 B 12AU7
VERT OUTPUT V14 6W6GT
HORIZ OSC V15 6SN7GTB
HORIZ OUTPUT V16 6BQ6GA
HV RECT V18 1B3GT
DAMPER V17 6AX4GT
LV RECT V19 5U4GB
PICTURE TUBE V20 21ATP4
FINE TUNING
AGC CONTROL
SYNC STABILITY CONTROL 7.5 MEG
VERT. HOLD CONTROL .5 MEG
HEIGHT CONTROL 2.5 MEG
VERT. LINEARITY CONTROL 1.5K
HORIZ. HOLD CONTROL 50K
HORIZ. FREQ.
HORIZ. DRIVE 170-700 MMF
HORIZ. WAVE FORM
WIDTH
BOOST 640V
BUZZ CONTROL
VOLUME CONTROL 1 MEG WITH SW ON
TONE CONTROL 100K
CONTRAST CONTROL 1K
SW ON VOLUME CONTROL
SW ON BRIGHTNESS CONTROL 500K
DEFLECTION YOKE
ON TRAP
HV TRANSFORMER TERM BOARD
VHF ANT. TERM BOARD
TO TUNER TERM A
TO ANT. OF CRS & RDA
CK 706A CATH
AGC CLAMPING CIRCUIT USED IN SOME VERSIONS
AMPLITUDE VARIES WITH SETTING OF SYNC STABILITY CONTROL (R)
TAKEN WITH PIN 1 OF VERT. OSC TUBE (V13B) SHORTED TO GROUND
DO NOT MEASURE
VERT = 40 V. HORIZ = 30 V.
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
DENOTES CHASSIS GROUND
MEASURED FROM PIN 8 OF V1
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM. (SEE PARTS LIST)
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise noted.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1956
FIRESTONE MODELS 13-G-201, 13-G-202, 13-G-203, 13-G-204, 13-G-205, 13-G-206 (Codes 334-5-A61C/A, 334-5-A61U/A)

FIRESTONE MODELS 13-G-201, 13-G-202, 13-G-203, 13-G-204, 13-G-205, 13-G-206 (Codes 334-5-A61C/A, 334-5-A61U/A)

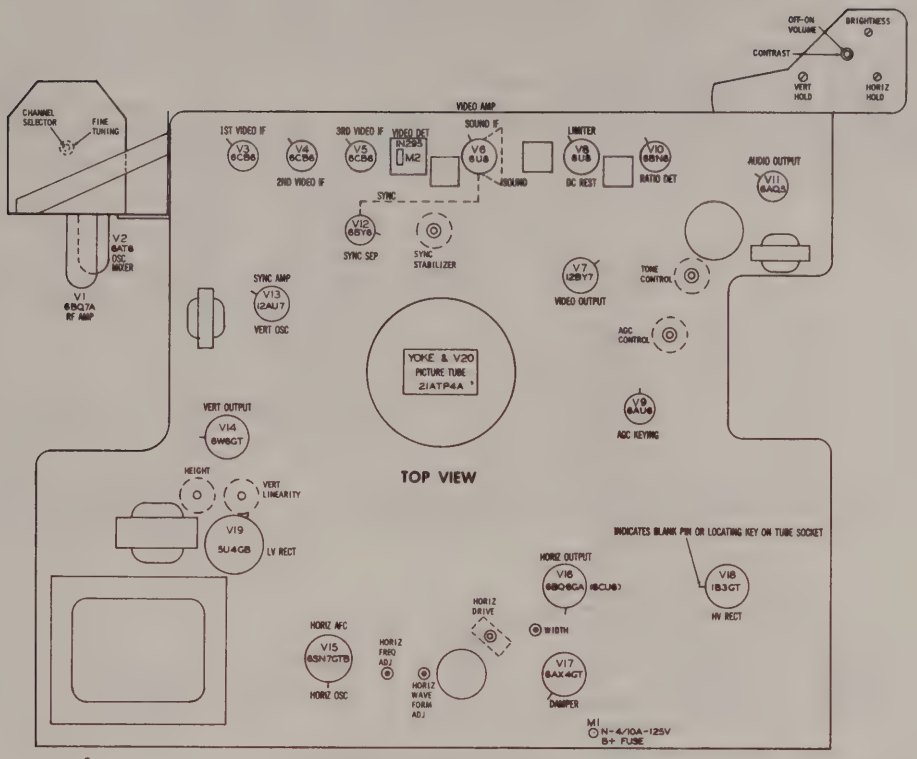


CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V19, Fuse (M1)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V6, V7, V8, V20
Has pic, no sound -V6, V9, V10, V11
Overloaded picture - V8

SYNC FAILURE
No vert. sync - V13
No horiz. sync - V13, V15
No vert. or horiz. sync - V12, V13

SWEEP FAILURE
No raster, has sound - V15, V16, V17, V18, V20
No vertical deflection - V13, V14
Poor vert. linearity or foldover - V13, V14
Poor horiz. linearity or foldover - V15, V16, V17
Narrow picture - V15, V16, V17, V18, V19
Vert. off freq. - V13
Horiz. off freq. - V13, V15

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage leads should be securely taped away from the chassis.

VIDEO IF ALIGNMENT

Connect the negative lead of a 1.5 volt battery to the ungrounded side of C32. Connect the positive lead to chassis.
Use only enough generator output to provide usable indication on the scope or VTVM.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over converter tube (V2).	44MC (10MC Swp.)	41.25MC 45.75MC 47.25MC	Any unused channel	Vert. Amp. thru detector (Fig. 1) to pin 5 of 6CB6 (V3). Low side to chassis.	A1, A2, A3, A4	Adjust A1 to place 47.25MC marker in trap notch as in Fig. 2. Adjust A2, A3, and A4 for response similar to Fig. 2. A2 and A3 affect the flat portion of the curve. A4 positions the 41.25MC marker. Make sure 45.75MC marker is on peak of curve as shown or 44.5MC marker will be incorrect on overall response curve.
2.	"	"	Not used	42.8MC (Unmod.)	"	Use VTVM. DC probe to point (A). Low side to chassis.	A5	Increase bias to 4.5 volts. Attenuate generator output to maintain 1 volt at VTVM. Adjust for maximum deflection.
3.	"	"	Not used	45.3MC (Unmod.)	"	"	A6	"
4.	"	"	"	44MC (Unmod.)	"	"	A7	"
5.	"	"	"	41.25MC (Unmod.)	"	"	A8	Adjust for MINIMUM deflection.
6.	"	"	44MC (10MC Swp.)	41.25MC 42.25MC 42.5MC 43.9MC 44.5MC 45.3MC 45.75MC 47.25MC	"	Vert. Amp. thru 10KΩ to point (A). Low side to chassis.		Check for response curve similar to Fig. 3. SLIGHTLY retouch A5 thru A8 to obtain desired response. If A1 thru A4 requires retouching, step 1 should be repeated.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	10KΩ	High side thru 10KΩ to point (B). Low side to chassis.	4.5MC (Unmod.)	Any unused channel	DC probe to pin 2 (grid) of picture tube.	A9	Adjust for MINIMUM deflection.

ALTERNATE 4.5MC TRAP ALIGNMENT

Remove bias supply.
Tune in a TV station and adjust A9 for MINIMUM 4.5MC beat interference in the picture.

SOUND IF ALIGNMENT

Turn the set on and tune in a TV station. Reduce the signal input by use of an attenuator or similar device until hiss and background noise is noticed.
Adjust A10, A11, A12, A13 and R10 for maximum undistorted sound and MINIMUM buzz.
If hiss disappears during alignment, reduce signal until hiss reappears.

VHF OSCILLATOR ALIGNMENT

Connect the negative lead of a 4.5 volt battery to the unground side of C32. Connect the positive lead to chassis.
The channel oscillator adjustment screws are reached through a hole below and slightly to the right of the channel switch shaft. The correct adjustment screw is accessible though this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω Carbon Resistors	Across VHF antenna leads with 120Ω in each lead.	213MC (10MC Swp.)	211.25MC 215.75MC	13	Vert. Amp. thru 10KΩ to point (A). Low side to chassis.	A14	Adjust to place sound marker in trap notch as in Fig. 4. Video marker should be at 50%.
			207MC (10MC Swp.)	205.25MC 209.75MC	12		A15	
			201MC (10MC Swp.)	199.25MC 203.75MC	11		A16	
			195MC (10MC Swp.)	193.25MC 197.75MC	10		A17	
			189MC (10MC Swp.)	187.25MC 191.75MC	9		A18	
			183MC (10MC Swp.)	181.25MC 185.75MC	8		A19	
			177MC (10MC Swp.)	175.25MC 179.75MC	7		A20	
			85MC (10MC Swp.)	83.25MC 87.75MC	6		A21	
			79MC (10MC Swp.)	77.25MC 81.75MC	5		A22	
			69MC (10MC Swp.)	67.25MC 71.75MC	4		A23	
			63MC (10MC Swp.)	61.25MC 65.75MC	3		A24	
			57MC (10MC Swp.)	55.25MC 59.75MC	2		A25	

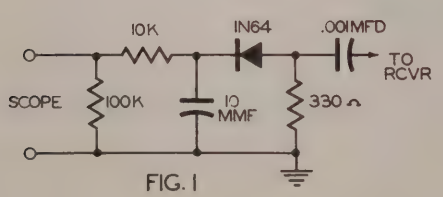


FIG. 1

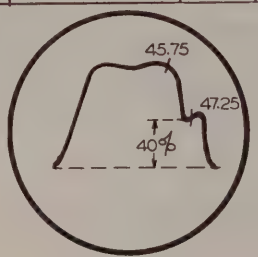


FIG. 2

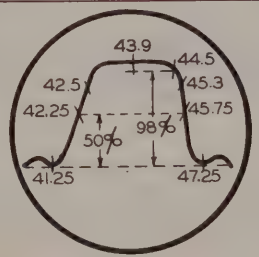


FIG. 3

ALIGNMENT INSTRUCTIONS (cont)

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 3 volt bias supply to the ungrounded side of C25. Connect the positive lead to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	207MC (10MC Swp.)	205. 25MC 209. 75MC	12	Vert. amp. thru 10KΩ to point Ⓒ. Low side to chassis.	A26, A27, A28	Adjust for response curve similar to Fig. 5 with markers above 90%.
10.	"	"	213MC (10MC Swp.)	211. 25MC 215. 75MC	13	"		If markers fall below 70% on any channel, make compromise adjustment of A26, A27, and A28 with channel switch set to that channel. Then recheck all other channels to see that they have not been seriously affected.
			201MC (10MC Swp.)	199. 25MC 203. 75MC	11			
			195MC (10MC Swp.)	193. 25MC 197. 75MC	10			
			189MC (10MC Swp.)	187. 25MC 191. 75MC	9			
			183MC (10MC Swp.)	181. 25MC 185. 75MC	8			
			177MC (10MC Swp.)	175. 25MC 179. 75MC	7			
			85MC (10MC Swp.)	83. 25MC 87. 75MC	6			
			79MC (10MC Swp.)	77. 25MC 81. 75MC	5			
			69MC (10MC Swp.)	67. 25MC 71. 75MC	4			
			63MC (10MC Swp.)	61. 25MC 65. 75MC	3			
			57MC (10MC Swp.)	55. 25MC 59. 75MC	2			

UHF TUNER ALIGNMENT

The UHF tuner portion of this receiver has been properly aligned at the factory and is very stable. Alignment of this portion is not recommended in the field.

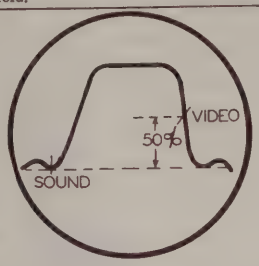


FIG. 4

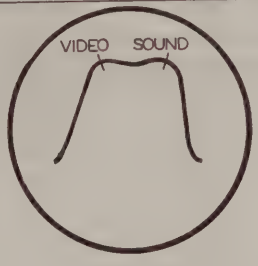
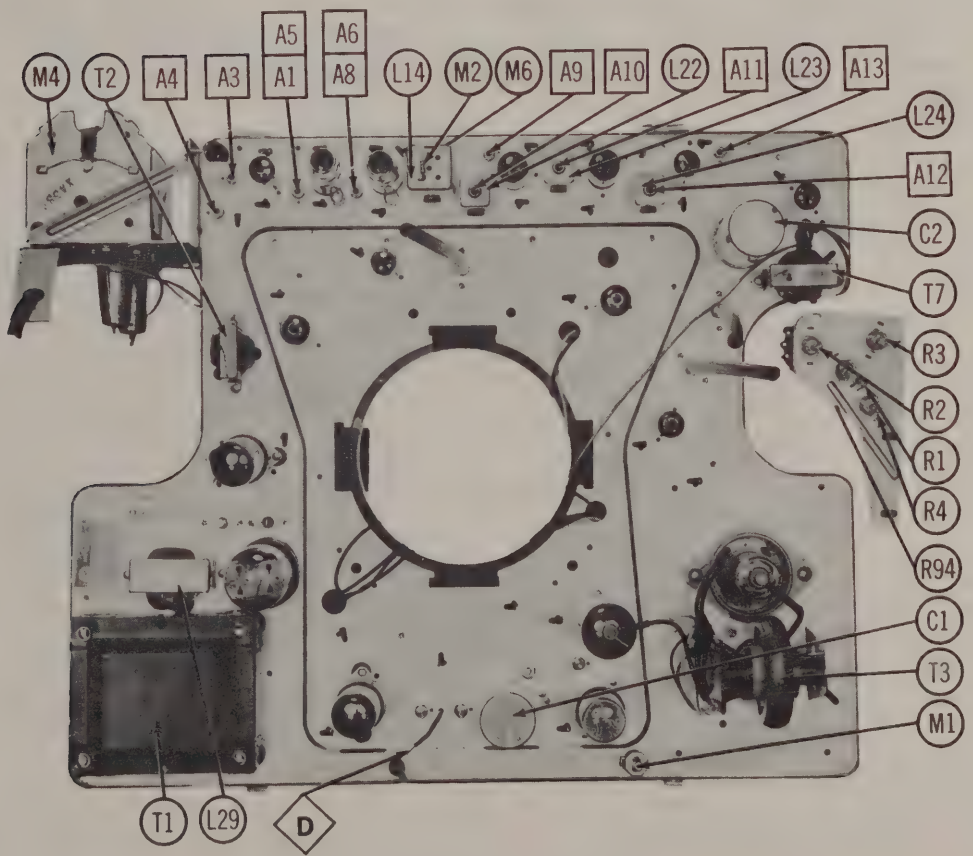


FIG. 5



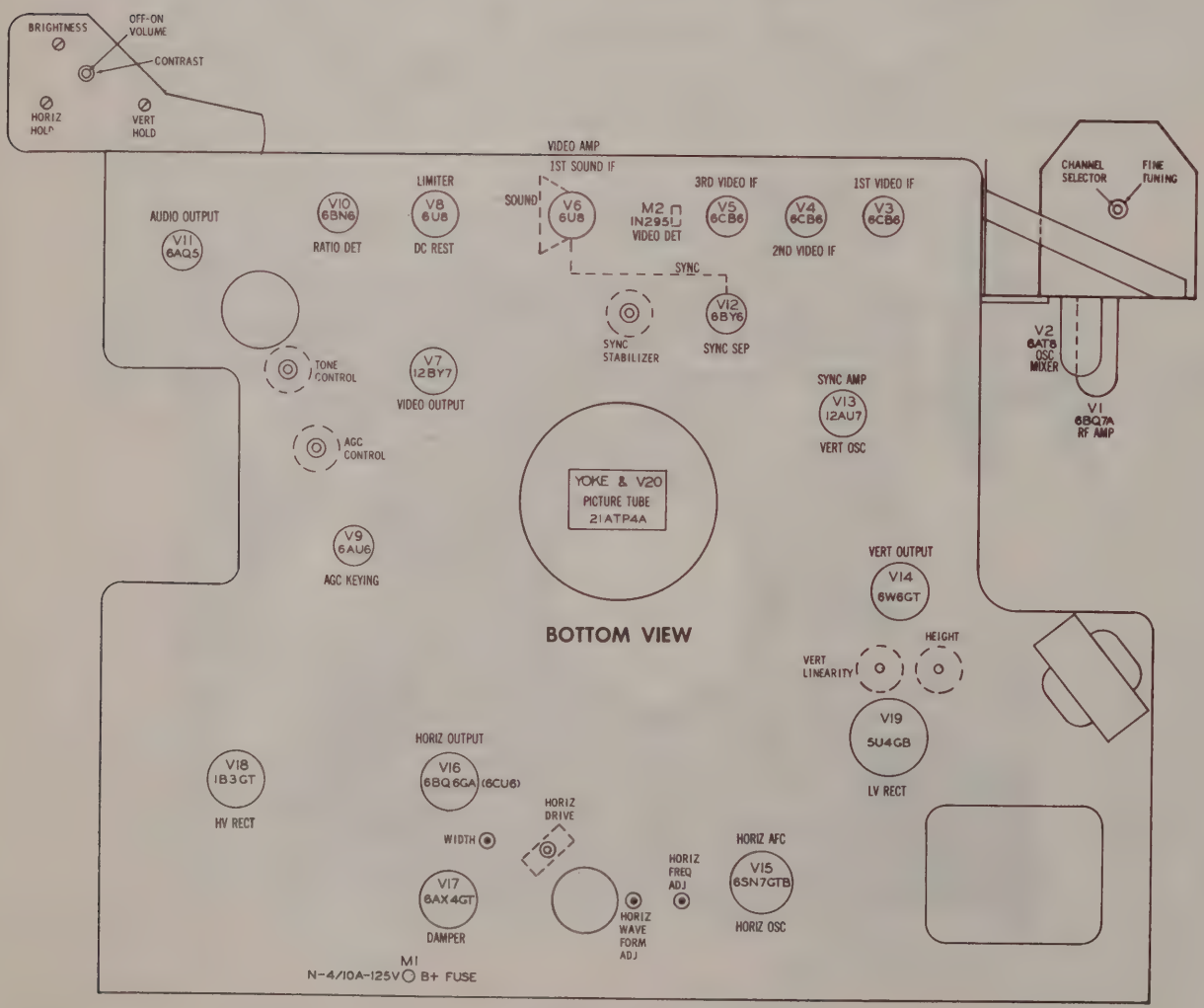
CHASSIS TOP VIEW

PROPERTY OF
DENVER, COLORADO

RESISTANCE MEASUREMENTS

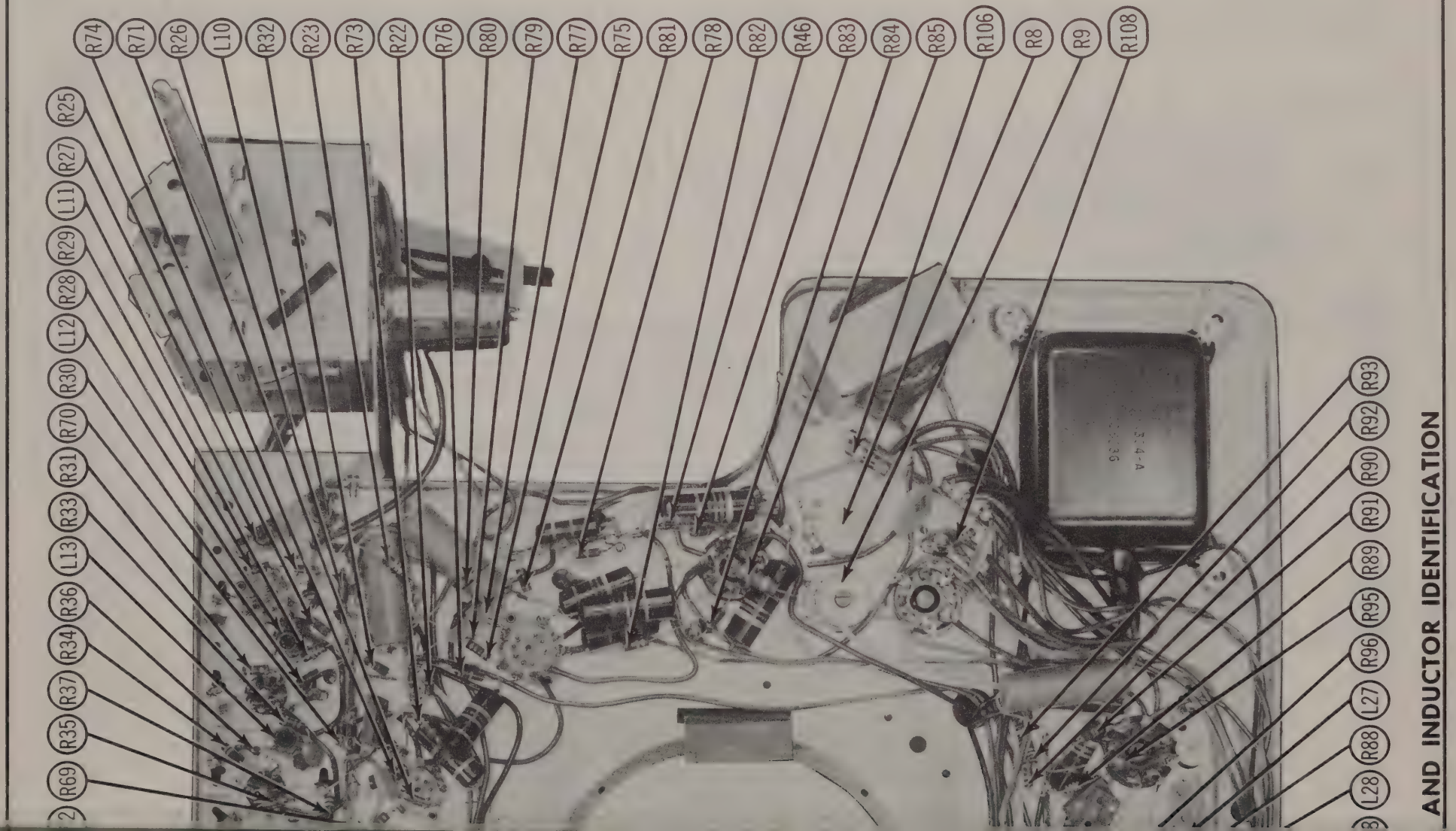
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7A	INF	550KΩ	0Ω	0Ω	.1Ω	† 1.5KΩ	300KΩ	INF	0Ω
V 2	6AT8	10KΩ	† 7.3KΩ	0Ω	0Ω	.1Ω	† 17KΩ	† 50KΩ	0Ω	220KΩ
V 3	6CB6	30KΩ	47Ω	0Ω	.1Ω	† 3.2KΩ	† 3.2KΩ	0Ω		
V 4	6CB6	22KΩ	47Ω	0Ω	.1Ω	† 3.2KΩ	† 3.2KΩ	0Ω		
V 5	6CB6	.2Ω	180Ω	0Ω	.1Ω	† 2.7KΩ	† 2.7KΩ	0Ω		
V 6	6U8	† 9KΩ	2.1Ω	† 35KΩ	0Ω	.1Ω	† 35KΩ	580Ω	1.6Ω	3.9KΩ
V 7	12BY7	400Ω	1Meg	0Ω	0Ω	0Ω	.1Ω	† 3.6KΩ	† 1.7KΩ	0Ω
V 8	6U8	0Ω	100KΩ	† 150KΩ	.1Ω	0Ω	† 85KΩ	0Ω	1Meg	0Ω
V 9	6AU6	† 35KΩ	† 1.7KΩ	0Ω	.1Ω	120KΩ	† 45Ω	† 1.7KΩ		
V 10	6BN6	300Ω	3.5Ω	.1Ω	0Ω	† 6.5KΩ	6Ω	† 330KΩ		
V 11	6AQ5	500KΩ	270Ω	.1Ω	0Ω	† 1KΩ	† 500Ω	500KΩ		
V 12	6BY6	50KΩ	0Ω	0Ω	.1Ω	† 820KΩ	† 30KΩ	2.2Meg		
V 13	12AU7	▲ 1.7Meg	2Meg	220Ω	.1Ω	.1Ω	† 13KΩ	47KΩ	0Ω	0Ω
V 14	6W6GT	TP	0Ω	† 450Ω	† 450Ω	2.2Meg	NC	.1Ω	1KΩ	
V 15	6SN7GTB	400KΩ	† 56KΩ	0Ω	1.5Meg	† 10KΩ	400KΩ	.1Ω	0Ω	
V 16	6BQ6GA	TP	0Ω	NC	† 6.8KΩ	470KΩ	NC	.1Ω	100Ω	TOP CAP ▲ 10Ω
V 17	6AX4GT	NC	NC	750KΩ	NC	† 45Ω	NC	.1Ω	0Ω	
V 18	1B3GT		PINS	1-8	HAVE	INF	RESISTANCE			TOP CAP ▲ 335Ω
V 19	5U4GB	NC	30KΩ	NC	23Ω	NC	20Ω	NC	30KΩ	
V 20	21ATP4A	0Ω	1Meg	PIN 6 † 100KΩ	PIN 10 ▲ 420KΩ	PIN 11 † 250KΩ	PIN 12 .1Ω			

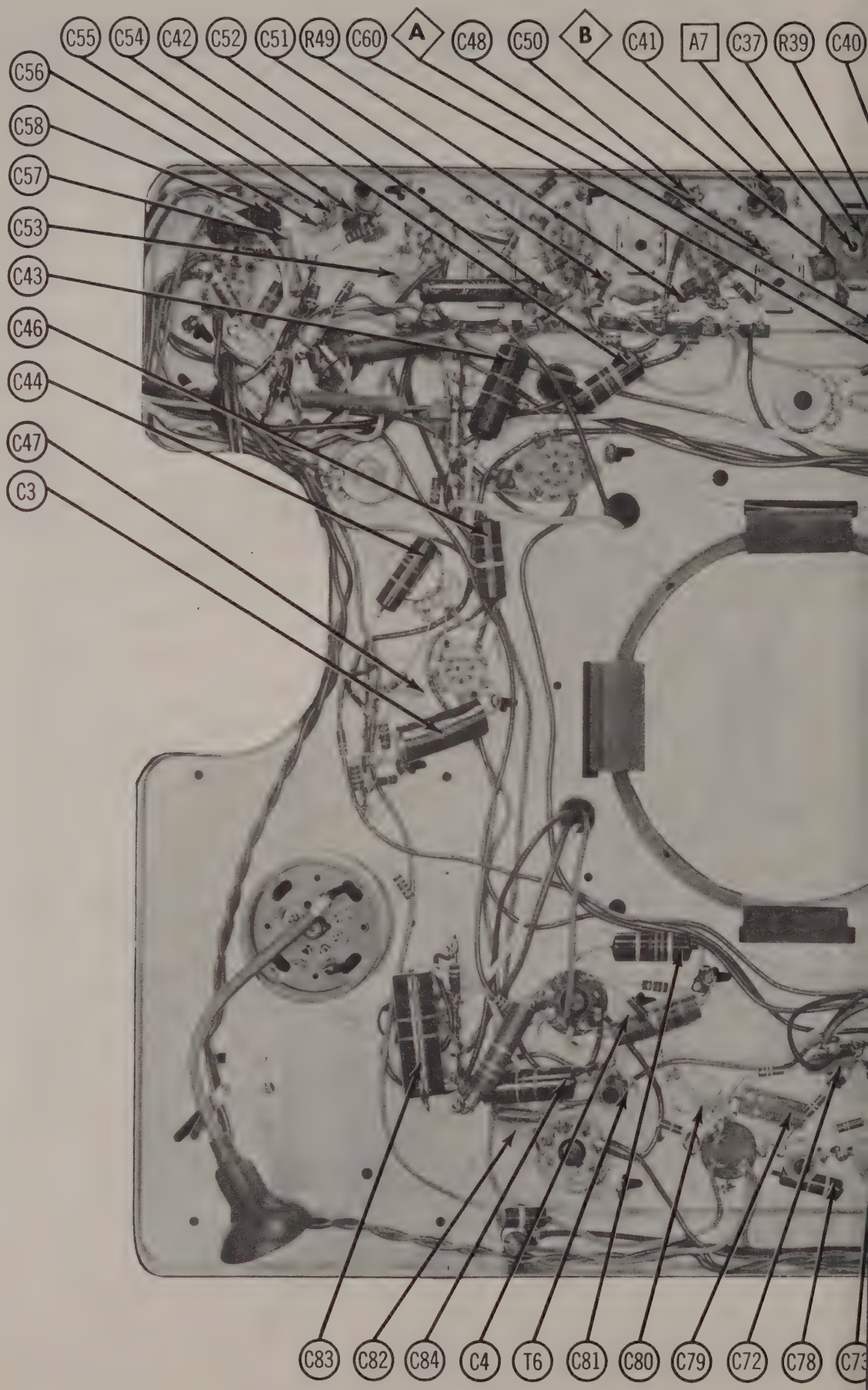
† MEASURED FROM PIN 2 OF V19.
▲ MEASURED FROM PIN 3 OF V17.
TP-TIE POINT.
NC-NO CONNECTION.



TUBE PLACEMENT CHART

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO





CHASSIS BOTTOM VIEW-CAPACI

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6BQ7A	
V2	Mixer-Oscillator	6AT8	
V3	1st. Video IF Amplifier	6CB6	
V4	2nd. Video IF Amplifier	6CB6	
V5	3rd. Video IF Amplifier	6CB6	
V6	Video Amplifier-Sound IF Amplifier	6U8	
V7	Video Output	12BY7	
V8	DC Restorer-Limiter	6U8	
V9	AGC Keying	6AU6	

ITEM No.	USE	TYPE	NOTES
V10	Audio Detector	6BN6	
V11	Audio Output	6AQ5	
V12	Sync Separator	6BY6	
V13	Sync Amplifier-Vert. Osc.	12AU7	
V14	Vert. Output	6W6GT	
V15	Horiz. AFC-Horiz. Osc.	6SN7GTB	
V16	Horiz. Output	6BQ6GA	Note 1
V17	Damper	6AX4GT	
V18	HV Rectifier	1B3GT	
V19	LV Rectifier	5U4GB	

Note 1. A 6CU6 may be used in some versions.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	FIRESTONE PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V20	21ATP4 ①	21ATP4 ①	21ATP4 ①	21ATP4/ 21ATP4A②	① Aluminized ② Silver screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	FIRESTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▬80	300	45X428	AFH4-07	B068	FP235	TMD-79	D-390	R2203 *
B	■20	300			BR205	TC36	TD-25-50	FM-0525	
C	▲20	50							
C2A	▬80	300	45X429	AFH3-29-50	B081	FP229.4	TMD-33	D-175	R2204 *
B	■60	300			BR505	TC39	TD-50-50	FM-0550	
C	▲40	50							
C3	4	50	47X418	PRS150V4	BR550	TC30	TD-4-50	MMT-0505	TVA-1303
C4	4	50	47X418	PRS150V4	BR550	TC30	TD-4-50	MMT-0505	TVA-1303

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	FIRESTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	120		13L8V121K		D6-121		811-121			
C6	5		13L8C050D	NP0-DI5	TCZ-5	Z011	NP0A-050	ZT-555	5TCCB-V47	
C7	6.8		13L8C6R81	NP0-DI6.8	TCZ-6.8	Z013	NP0A-6R8	ZT-5568	5TCCB-V68	
C8	6.8		13L8C6R81	NP0-DI6.8	TCZ-6.8	Z013	NP0A-6R8	ZT-5568	5TCCB-V68	
C9	3			NP0-DI3	TCZ-3R3	Z007	NP0A-030	ZT-553	5TCCB-V33	
C10	5-15		31B-901-02							
C11	800		13M-320EA-102ZC							
C12	2.2		13L8GP2R2C	NP0-SI2.2	TCZ-2R2	Z006	NP0A-2R2		5TCCB-V22	
C13	1000		13L8X102Z	BPD-001	DD-102	K069	811-102	DC-521	5HK-D1	
C14	.5-3		31B-902		829-3		3115-01-0R5	CT565A		
C15	800		13M-320EA-102ZC							
C16	800		13M-320EA-102ZC							
C17	.5-3		31B-902		829-3		3115-01-0R5	CT565A		
C18	60		13M-320Q-600J							
C19	1		13D-111-20	NP0-SI1	TCZ-1		NP0A-010		5TCCB-V1	
C20	10		13L8UA100D							
C21	10		13L8Q100A							
C22	1000		13L8X102Z	BPD-001	DD-102	K069	811-102	DC-521	5HK-D1	
C23	1000		13L8X102Z	BPD-001	DD-102	K069	811-102	DC-521	5HK-D1	
C24	800		13M-320EA-102ZC							
C25	.47	200	RCP10M2474M	P288N-47		CUB2P47		PT4047	2TM-P47	
C26	47			NP0-SI47	TCZ-47	TZ22	831-470	ZT-5447	MS-447	
C27	47			NP0-SI47	TCZ-47	TZ22	831-470	ZT-5447	MS-447	
C28	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C29	680			BPD-00068	DD-681	K065	811-681	UC-5368	5GA-T68	
C30	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C31	56			NP0-SI56	TCZ-56	TZ24	NP0-337-560			
C32	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C33	.47	200	RCP10M2474M	P288N-47		CUB2P47		PT4047	2TM-P47	
C34	680			BPD-00068	DD-681	K065	811-681	UC-5368	5GA-T68	
C35	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C36	68			NP0-SI68	TCZ-68	TZ26	NP0-337-680		5TCC-Q68	
C37	560		80X9	1464-00056	D6-681	1R5T56	NP0-337-680		MS-356	
C38	470		80X4	1464-00047	DD-471	5R5T47	811-471	UC-5347	1FM-347	
C39	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C40	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C41	100			NP0-SI100	TCZ-100	TZ30	801-101	ZT-531	5TCC-T1	
C42	.047	400	RCP10M4473M	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C43	.1	400		P488N-1	DF-104	CUB4P1		PT401	4TM-P1	
C44	.015	600	RCP10M6153M	P688N-15	DD16-153	CUB6S15		PT6115	6TM-S15	
C45	.047	600		BPD-05	DF-503	CUB6S47		PT6147	6TM-S47	
C46	.1	200		P288N-1	DF-104	CUB2P1		PT401	2TM-P1	
C47	1000		47X753	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C48	1.5			NP0-SI1.5	TCZ-1R5	TZ04	NP0A-1R5	ZT-5515	5TCCB-V15	
C49	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C50	5000			BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C51	100			NP0-SI100	D6-101	TZ30	801-101	ZT-531	5TCC-T1	

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA FIRESTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C52A	1000		80X3	BPD-2X001	DD2-102	DK069	812-001	DCD521	5HK-2D1	
B	1000									
C53A	1000		80X3	BPD-2X001	DD2-102	DK069	812-001	DCD521	5HK-2D1	
B	1000									
C54	15									
C55	470		80X4	BPD-00047	DD-471	K060	811-471	UC-5347	5GA-T47	
C56	5000			BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C57	.0047	400	RCP10M4472M	BPD-0047	D6-472	CUB6D47	GP2-333-472	PT6247	6TM-D47	
C58	.022	600	RCP10M6223M	BPD-02	DF-203	CUB6S22	817-02	PT6122	6TM-S22	
C59	330	500	47X570	1469-00033		5R5T33			MS-333	
C60	5000			BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C61	.047	400	RCP10M4473M	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C62	.047	400	RCP10M4473M	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C63A	2000							DC-522		
B	5000		†76X7	†PA110	†PC-100	†115TM1	†1405-01	DC-525	†V1	
C	5000							DC-525		
C64	.01	400		BPD-01	D6-103	CUB4S1	GP3-333-103	PT411	4TM-S1	
C65	.022	200	RCP10M2223M	BPD-02	DF-203	CUB4S22	817-02	PT4122	2TM-S22	
C66	.047	600	RCP10M6473M	BPD-05	DF-503	CUB6S47		PT6147	6TM-S47	
C67	.047	400	RCP10M4473M	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C68	.047	200	RCP10M2473M	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C69	.1	400		P488N-1	DF-104	CUB4P1		PT401	4TM-P1	
C70	18	500	RCM20B180K	1469-000018	TCZ-18	22R5Q18	NP0K-180		MS-418	
C71	82	500	RCM20K820K	1469-000082	TCZ-82	22R5Q82	NP0-337-820		MS-482	
C72	100	500		1469-0001	TCZ-100	22R5T1	NP0-337-101	MCB235	MS-31	
C73	.047	400	RCP10M4473M	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C74	.047	200	RCP10M2473M	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C75	.022	200	RCP10M2223M	BPD-02	DF-203	CUB4S22	817-02	PT4122	2TM-S22	
C76	.47	200	RCP10M2474M	P288N-47		CUB2P47		PT4147	2TM-P47	
C77	220	500		1469-00022	TCZ-220	22R5T22	NP0-335-221		MS-322	
C78	.01	400		BPD-01	D6-103	CUB4S1	GP3-333-103	PT411	4TM-S1	
C79	820	500	RCM25B821K	1464-00082		1R5T82			MS-382	
C80	680			1464-00068	DD-681	K065	811-681	UC-5368	MS-368	
C81	.047	400	RCP10M4473M	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C82	39	5000	47X756		DD60-390					
C83	.1	600		P688N-1	DF-104	CUB6S1		PT601	6TM-P1	
C84	.15	200	RCP10M2154M	P288N-15		CUB2P15		PT4015	2TM-P15	
C85	10000		47X615	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C86	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C87	.1	600		P688N-1	DF-104	CUB6P1		PT601	6TM-P1	Note 1

† Items C63A, C73B, C63C, R77A, R77B and R77C are combined in one unit.
Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA FIRESTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1000Ω	½	B78X24A	F1-4	RTV-579	* QJ-873	UF13L	Contrast (Panel)
B	1Meg	½		R2-56			UR16-T35 ††	Volume tapped at 500KΩ (Rear)
C	Switch			KB-2			US-27	Attach to R1B.
R2A	500KΩ	½	B40X394C	AB-59	A47-500K-S	Q11-133	U-50	Brightness
B	Shaft		Not Req.	AK-8	RS-3/16	NQ	DS-37	Attach to R2A.
R3A	1.5Meg	½	B40X396C	AB-742	A47-1.5Meg-S	Q11-138	U-155	Vert. Hold
B	Shaft		Not Req.	AK-8	RS-3/16	NQ	DS-37	Attach to R3A.
R4A	50KΩ	½	B40X395C	AB-31	A47-50K-S	Q11-123	U-35	Horizontal Hold
B	Shaft		Not Req.	AK-8	RS-3/16	NQ	DS-37	Attach to R4A.
R5A	100KΩ	½	B40X407	AB-40	A47-100K-S	Q11-128	TA15L	Tone
B	Shaft		Not Req.	AK-4	FKS-½	Not Req.	Not Req.	Attach to R5A.
R6A	2.5Meg	½	♦ B40X405	AB-83	A47-2.5Meg-S	Q11-239	TA255L	AGC-Note 1
B	Shaft		Not Req.	AK-19	RN-3	Not Req.	Not Req.	Attach to R6A.
R7A	7.5Meg	½	■ B40X406	AB-89	A47-7.5Meg-S	Q11-142	PTA855L	Sync Stability-Note 2
B	Shaft		Not Req.	AK-19	RN-3	Not Req.	Not Req.	Attach to R7A.
R8A	2.5Meg	½	B40X405A	AB-83	A47-2.5Meg-S	Q11-239	TA255L	Height
B	Shaft		Not Req.	AK-4	FKS-½	RQ	Not Req.	Attach to R8A.
R9A	1500Ω	½	B40X410	AB-6	A47-1500-S	Q11-109	PTA152L	Vert. Linearity
B	Shaft		Not Req.	AK-19	RN-3	RQ	Not Req.	Attach to R9A.
R10	500Ω	2	40X397		39-500			Buzz-Wire Wound

Note 1. Later production receivers will use an alternate control Part No. 40X412 in this application.
Note 2. Later production receivers will use an alternate control Part No. 40X405 in this application.
† Universal Replacement (Mallory Exact Duplicate Part No. UE7IS).
♦ Versions using control Part No. 40X412 for replacement remove the 3.9 megohm resistor connected from high side to arm of control.
■ Versions using control Part No. 40X405 for replacement remove the 3.9 megohm resistor (R109) used with the old control.
* Concentrikit Equivalent: K-2 Kit, Base Elements and Shafts; B11-108 & P6-200 (Panel)
B13-137 X & R1-218 (Rear)
76-2 (Switch)

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA FIRESTONE PART No.	IRC PART No.	NOTES
R11	680KΩ	½	12TAE684M	BTS-680K	
R12	4700Ω	½	12TAE472K	BTS-4700	
R13	820KΩ	½	12TAE824K	BTS-820K	
R14	470KΩ	½	12TAE474K	BTS-470K	
R15	220KΩ	½	12TAE224M	BTS-220K	
R16	8200Ω	½			
R17	10KΩ	½	12TAE103K		
R18	5600Ω	½	12TAE562K		
R19	15KΩ	½	12TAE153K		
R20	47KΩ	½	12TAE473K		
R21	1500Ω	2		BTB-1500	
R22	6800Ω	½		BTS-6800	
R23	390KΩ	½		BTS-390K	
R24	820KΩ	½		BTS-820K	
R25	4700Ω	½			
R26	1000Ω	½		BTS-1000	
R27	1000Ω	½		BTS-1000	
R28	47Ω 5%	½		BTS-47	
R29	68KΩ	½			
R30	1000Ω	½		BTS-1000	
R31	47Ω 5%	½		BTS-47	
R32	470Ω	½		BTS-470	
R33	47KΩ	½			
R34	22KΩ	½			
R35	1000Ω	½		BTS-1000	
R36	180Ω	½		BTS-180	
R37	3900Ω 5%	½		BTS-3900	
R38	5600Ω	1		BTA-5600	
R39	680Ω	½		BTS-680	
R40	820Ω	½		BTS-820	
R41	1Meg	½		BTS-1Meg	
R42	3600Ω	4	43X331		

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA FIRESTONE PART No.	IRC PART No.	NOTES
R43	68Ω	½		BTS-68	
R44	1Meg	½		BTS-1Meg	
R45	100KΩ	½		BTS-100K	
R46	2200Ω	½		BTS-2200	
R47	100KΩ	½		BTS-100K	
R48	22KΩ	½		BTS-22K	
R49	100KΩ	½		BTS-100K	
R50	33KΩ	½		BTS-33K	
R51	47KΩ	½		BTS-47K	
R52	68KΩ	½		BTS-68K	
R53	22KΩ	½		BTS-22K	
R54	100KΩ	½		BTS-100K	
R55	47KΩ	½		BTS-47K	
R56	47KΩ	½		BTS-47K	
R57	33KΩ	½		BTS-33K	
R58	560Ω	½		BTS-560	
R59	100KΩ	½		BTS-100K	
R60	82KΩ	½		BTS-82K	
R61	68KΩ	½		BTS-68K	
R62	680Ω	½		BTS-680	
R63	330KΩ	½		BTS-330K	
R64	4700Ω	½		BTS-4700	
R65	120KΩ	½		BTS-120K	
R66	470Ω	1		BTA-470	
R67	270Ω	1		BTA-270	
R68	10KΩ	½		BTS-10K	
R69	47KΩ	½		BTS-47K	
R70	150KΩ	½		BTS-150K	
R71	2.2Meg	½		BTS-2.2Meg	
R72	270KΩ	½		BTS-270K	
R73	820KΩ	½		BTS-820K	
R74	27KΩ	1		BTA-27K	

PARTS LIST AND DESC

RESISTOR

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA FIRESTONE PART No.	IRC PART No.	NOTES
R75	47KΩ	½		BTS-47K	
R76	4700Ω	½		BTS-4700	
R77A	22KΩ	½	† 76X7	BTS-22K	
B	8200	½		BTS-8200	
C	8200	½		BTS-8200	
R78	1.2Meg	½		BTS-1.2Meg	
R79	180KΩ	½		BTS-180K	
R80	2.2Meg	½		BTS-2.2Meg	
R81	1Meg	½		BTS-1Meg	Note 1
R82	22KΩ	½		BTS-22K	
R83	8200Ω	½		BTS-8200	Note 2
R84	2.2Meg	½		BTS-2.2Meg	
R85	680Ω	1		BTA-680	
R86	560Ω	½			
R87	560Ω	½			
R88	220KΩ	½			
R89	330KΩ	½			
R90	820KΩ	½			
R91	82KΩ	½			
R92	330KΩ	½			

Note 1. Some versions use a 470KΩ ½W r
Note 2. Some versions use a 12KΩ ½W r
Note 3. Used only with Sync stability co
Note 4. Not used in some versions.
† Items R77A, R77B, R77C, C63A, C63B,

TRANSFORMER

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	FIRESTONE PART No.
T1	117VAC @ 1.7A	525VCT @ .270A	5V @ 3A	6.3V @ 9.6A	53X354-A

① Parallel and phase 6.3V @ 6A windings, tape 6.3V @ 1.2A
② Tape high HV winding, tape 5V @ 3A winding. Parallel and
③ Parallel and phase 6.3V windings.

TRANSFORMERS (SV

ITEM No.	USE	FIRESTONE PART No.	Halldorson PART No.	Merit PART No.
T2	Vert. Osc. Trans.	54X10	B6702	A-3003
T3	Horiz. Output Trans.	53X355	FB419 & RF800 * ①	HVO-36 & MWC-11 * ①
T4	Vert. Output Trans.	51X173	Z1900 ②③	A-2823 ①③
T5A	Yoke(90°)Horiz.(19MH)	9A2385-1 ④	DF607 ⑦	MDF-92 ⑦
B	Vert.(39MH)	9A2385 ④⑤ 2A435 ⑧	⑧	⑧
T6	Width Coil (1-9MH)	9A2381	RF802 ⑨	MWC-6

① Drill new mounting hole(s).
② Use 8 to 1 turns ratio.
③ Connect as auto transformer.
④ Includes resistors R86 and R87.
⑤ Alternate Airline part number.
⑥ Yoke rear cover and centering device.
⑦ Use original rear cover and centering device.
⑧ Use original horizontal yoke damping network.
⑨ Do not use tap.
⑩ Connect to coded red and blue terminals.

*HORIZONTAL OUTPUT TRAN

Use Original Width Coil Unle

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacem Connecti
	8	9	9	9
	4	7	7	7
	3	7	7	7
	2	4-Also See Note ⑪	4-Also See Note ⑪	4-Also S Note ⑪
	1	3	3	3
	5	1	1	1
Connect Width Coil Across →	1 & 5	Terms. #1 & #2 of RF800 Across 3 & 1	MWC-11 Across 3 & 1	212R1 Across 3 & 1
Special Notes →		⑪ ⑫	⑪ ⑫	⑪ ⑫

⑪ Connect approximately 100-150MMF @ 2KV in series w #3 and #7.
⑫ Change values of resistors R55 and R56 as necessary t Keying tube.
⑬ Ground either terminal #6 or terminal #7.

TRANSFORMER (A

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DA FIRESTONE PART No.	Halldorson PART No.	Merit PART No.	Sta PAR
T7	4.7KΩ	3-4Ω	51X176	Z1005	A2930	A3

SPEAK

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	REPLACEMENT DA FIRESTONE PART No.	QUAM PART No.
SP1	10"	PM	3-4Ω	12A533	10A31
	6"	PM	3-4Ω	12A528 ①	6A1
SP2	4"	PM	3-4Ω	12A532	4A07

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: FIRESTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C52A	1000		90X3	BPD-1X001	DD8-102	DED69	811-001	DCD521	5HK-3D1	
B	1000									
C53A	1000		90X3	BPD-1X001	DD8-102	DED69	811-001	DCD521	5HK-3D1	
B	1000									
C54	15									
C55	470		80X4	BPD-00047	DD-471	KD60	811-471	UC-5347	5GA-T47	
C56	5000			BPD-00503	DD-502	KD60	811-005	DC-535	5HK-D5	
C57	.0047	400	RCP10M4473M	BPD-0047	DS-472	CUSD5H7	GP3-333-473	PT9347	5TM-D47	
C58	.033	500	RCP10M3333M	BPD-03	DF-333	CUSD5H7	817-03	PT9133	5TM-S33	
C59	330	500	47X970	1469-00033		SR57S3			M9-333	
C60	5000			BPD-005	DD-502	KD60	811-005	DC-535	5HK-D5	
C61	.047	400	RCP10M4473M	BPD-05	DF-503	CUSD5H7		PT9147	5TM-S47	
C62	.047	400	RCP10M4473M	BPD-05	DF-503	CUSD5H7		PT9147	5TM-S47	
C63A	3000							DC-533		
B	5000		†76X7	†PA110	†PC-100	†1U27M1	†1408-01	DC-535	†V1	
C	5000							DC-535		
C64	.01	400		BPD-01	DS-103	CUSD5H1	GP3-333-103	PT401	4TM-S1	
C65	.022	200	RCP10M2233M	BPD-03	DF-203	CUSD5H7	817-03	PT9122	5TM-S22	
C66	.047	400	RCP10M4473M	BPD-05	DF-503	CUSD5H7		PT9147	5TM-S47	
C67	.047	400	RCP10M4473M	BPD-05	DF-503	CUSD5H7		PT9147	5TM-S47	
C68	.047	200	RCP10M2473M	BPD-05	DF-503	CUSD5H7		PT9147	5TM-S47	
C69	.1	400		P488N-1	DL-104	CUSAP1		PT401	4TM-P1	
C70	18	500	RCM30B180K	1469-00018	TCS-18	2ER5Q18	NP0K-180		M9-418	
C71	82	500	RCM30B820K	1469-00082	TCS-82	2ER8Q82	NP0-337-820		M9-482	
C72	100	500		1469-00061	TCS-100	2ER5T1	NP0-337-101	MC3235	M9-31	
C73	.047	400	RCP10M4473M	BPD-05	DF-503	CUSD5H7		PT9147	5TM-S47	
C74	.047	400	RCP10M4473M	BPD-05	DF-503	CUSD5H7		PT9147	5TM-S47	
C75	.022	200	RCP10M2233M	BPD-03	DF-203	CUSD5H7	817-03	PT9122	5TM-S22	
C76	.47	200	RCP10M3474M	P288N-47		CUSAP1		PT9147	5TM-P47	
C77	820	400		1469-00033	TCS-220	2ER5T33	NP0-335-221	MS-333	M9-333	
C78	.01	400		BPD-01	DS-103	CUSD5H1	GP3-333-103	PT411	4TM-S1	
C79	820	500	RCM25B821K	1464-00082		1R5T53			M5-382	
C80	680	500		1464-00068	DD-681	KD65	811-681	UC-5368	M9-368	
C81	.047	400	RCP10M4473M	BPD-05	DF-503	CUSD5H7		PT9147	5TM-S47	
C82	39	5000	47X756		DL09-390	2SR5T1			M9-339	
C83	.1	600		P488N-1	DP-104	CUSB51		PT601	6TM-P1	
C84	.15	200	RCP10M1534M	P288N-15		CUSNP15		PT9615	3TM-P15	
C85	10000		47X815	BPD-01	DD-103	KD63	811-01	DC-511	5HK-61	
C86	10000			BPD-01	DD-103	KD63	811-01	DC-511	5HK-61	
C87	.1	400		P488N-1	DP-104	CUSAP1		PT601	6TM-P1	Note 1

† Items C63A, C73B, C63C, R77A, R77B and R77C are combined in one unit.
Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: FIRESTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1000Ω	½	B76X34A	F1-4	RTV-579	* QJ-673	UF151	Contrast (Panel)
B	1Meg	½		R3-56			UR16-735	† Volume tapped at 500KΩ (Rear)
C	Switch			KB-3			UR-37	Attach to R1B.
R2A	500Ω	½	B40X394C	AB-59	A47-500K-S	Q11-133	U-56	Brightness
B	Shaft	½	Not Req.	AK-5	R3-3/4S	NQ	D8-37	Attach to R2A.
R3A	1.5Meg	½	B40X396C	AB-743	A47-1.5Meg-S	Q11-138	U-55	Vert. Hold
B	Shaft	½	Not Req.	AK-5	R3-3/4S	NQ	D8-37	Attach to R3A.
R4A	50KΩ	½	B40X395C	AB-31	A47-50K-S	Q11-133	U-55	Horizontal Hold
B	Shaft	½	Not Req.	AK-5	R3-3/4S	NQ	D8-37	Attach to R4A.
R5A	100KΩ	½	B40X407	AB-40	A47-100K-S	Q11-128	TA15L	Tone
B	Shaft	½	Not Req.	AK-4	FKS-1	Not Req.	Not Req.	Attach to R5A.
R6A	2.5Meg	½	* B40X405	AB-33	A47-2.5Meg-S	Q11-139	TA255L	AGC-Note 1
B	Shaft	½	Not Req.	AK-19	RN-3	Not Req.	Not Req.	Attach to R6A.
R7A	7.5Meg	½	* B40X406	AB-59	A47-7.5Meg-S	Q11-142	TA7515L	Sync Sel.-Note 2
B	Shaft	½	Not Req.	AK-19	RN-3	Not Req.	Not Req.	Attach to R7A.
R8A	2.5Meg	½	B40X405A	AB-33	A47-2.5Meg-S	Q11-139	TA255L	Height
B	Shaft	½	Not Req.	AK-4	FKS-1	NQ	Not Req.	Attach to R8A.
R9A	1500Ω	½	B40X410	AB-5	A47-1500-S	Q11-109	PTA15L	Vert. Linearity
B	Shaft	½	Not Req.	AK-19	RN-3	NQ	Not Req.	Attach to R9A.
R10	500Ω	2	40X397		39-500			Buss-Wire Wound

Note 1. Later production receivers will use an alternate control Part No. 40X412 in this application.
Note 2. Later production receivers will use an alternate control Part No. 40X405 in this application.
† Universal Replacement (Mallory Exact Duplicate Part No. UE715).
* Versions using control Part No. 40X412 for replacement remove the 3.9 megohm resistor connected from high side to arm of control.
● Versions using control Part No. 40X405 for replacement remove the 3.9 megohm resistor (R109) used with the old control.
* Concentrikit Equivalent: K-5 Kit, Base Elements and Shafts; B11-102 & PS-200 (Panel)
B13-137 X & R1-218 (Rear)
76-2 (Switch)

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	NOTES
R11	680KΩ	½	12TA2S84M	BTS-680K	
R12	4700Ω	½	12TA2S472K	BTS-4700	
R13	820KΩ	½	12TA2S24K	BTS-820K	
R14	470KΩ	½	12TA2S474K	BTS-470K	
R15	220KΩ	½	12TA2S224M	BTS-220K	
R16	820Ω	½		BTS-82	
R17	10KΩ	½	12TA2S103K		
R18	5600Ω	½	12TA2S562K		
R19	15KΩ	½	12TA2S153K		
R20	47KΩ	½	12TA2S473K		
R21	1500Ω	2		BTB-1500	
R22	6800Ω	½		BTS-6800	
R23	390KΩ	½		BTS-390K	
R24	820KΩ	½		BTS-820K	
R25	4700Ω	½		BTS-4700	
R26	1000Ω	½		BTS-1000	
R27	1000Ω	½		BTS-1000	
R28	470.5%	½		BTS-47	
R29	68KΩ	½		BTS-68K	
R30	1000Ω	½		BTS-1000	
R31	470.5%	½		BTS-47	
R32	470Ω	½		BTS-470	
R33	47KΩ	½		BTS-47K	
R34	22KΩ	½		BTS-22K	
R35	1000Ω	½		BTB-1000	
R36	180Ω	½		BTS-180	
R37	3900Ω 5%	½		BTS-3900	
R38	560KΩ	½		BTA-560K	
R39	680Ω	½		BTS-680	
R40	820Ω	½		BTS-820	
R41	1Meg	½		BTS-1Meg	
R42	3900Ω	½	43X331		

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	NOTES
R43	68Ω	½		BTS-68	
R44	1Meg	½		BTS-1Meg	
R45	100KΩ	½		BTS-100K	
R46	2200Ω	½		BTS-2200	
R47	100KΩ	½		BTS-100K	
R48	22KΩ	½		BTS-22K	
R49	100KΩ	½		BTS-100K	
R50	33KΩ	½		BTS-33K	
R51	47KΩ	½		BTS-47K	
R52	68KΩ	½		BTS-68K	
R53	22KΩ	½		BTS-22K	
R54	100KΩ	½		BTS-100K	
R55	47KΩ	½		BTS-47K	
R56	47KΩ	½		BTS-47K	
R57	33KΩ	½		BTS-33K	
R58	56Ω	½		BTS-560	
R59	100KΩ	½		BTS-100K	
R60	82KΩ	½		BTS-82K	
R61	68KΩ	½		BTS-68K	
R62	68Ω	½		BTS-68	
R63	330KΩ	½		BTS-330K	
R64	4700Ω	½		BTS-4700	
R65	120KΩ	½		BTS-120K	
R66	470Ω	1		BTA-470	
R67	270Ω	1		BTA-270	
R68	10KΩ	½		BTS-10K	
R69	47KΩ	½		BTS-47K	
R70	150KΩ	½		BTS-150K	
R71	2.5Meg	½		BTS-2.5Meg	
R72	270KΩ	½		BTS-270K	
R73	820KΩ	½		BTS-820K	
R74	27KΩ	1		BTA-27K	

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	NOTES
R75	47KΩ	½		BTS-47K	
R76	4700Ω	½		BTS-4700	
R77A	22KΩ	½		BTS-22K	
B	8200	½	† 76X7	BTS-8200	
C	8200	½		BTS-8200	
R78	1.2Meg	½		BTS-1.2Meg	
R79	180KΩ	½		BTS-180K	
R80	2.2Meg	½		BTS-2.2Meg	
R81	1Meg	½		BTS-1Meg	Note 1
R82	33KΩ	½		BTS-33K	
R83	8200Ω	½		BTS-8200	Note 2
R84	2.5Meg	½		BTS-2.5Meg	
R85	680Ω	½		BTA-680	
R86	3800	½		DC-533	
R87	94KΩ	½		DC-535	
R88	230KΩ	½		PT401	4TM-S1
R89	330KΩ	½		PT4122	5TM-S22
R90	820KΩ	½		PT9147	5TM-S47
R91	82KΩ	½		PT9147	5TM-S47
R92	330KΩ	½		PT9147	5TM-S47

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA: FIRESTONE PART No.	IRC PART No.	NOTES
R93	3900Ω	½			
R94	120KΩ	½			
R95	82KΩ	½			
R96	22KΩ	½			
R97	1Meg	½		BTS-1Meg	
R98	56KΩ	½		BTS-56K	
R99	68Ω	½			
R100	470KΩ	1			
R101	6800Ω	2			
R103	100Ω	2			
R103	470KΩ	1		BTS-470K	
R104	4700Ω	½			
R105	1700Ω	10	43X388	1 ½A-1750	
R106	10Ω	1		BTA-10	
R107	100KΩ	2		BTS-100K	
R108	270KΩ	½		BTS-270K	
R109	3.9Meg	½		BTS-3.9Meg	Note 3
R110	68Ω	½			Note 4
R111	100Ω	½		BTS-100	Note 4

Note 1. Some versions use a 470KΩ ½W resistor in this application.
Note 2. Some versions use a 12KΩ ½W resistor in this application.
Note 3. Used only with Sync stability control No. 40X405.
Note 4. Not used in some versions.
† Items R77A, R77B, R77C, C63A, C63B, C63C are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA: FIRESTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC 1	525VCT ② 1.7A	5V ③ 3A	6.3V ④ 9.6A	53X354-A		P5130 ①	P8132 ③	36H33 ③	R-61BC ①

① Parallel and phase 5.3V ③ 6A windings, tape 6.3V ④ 1.2A winding.
② Tape high HV winding, tape 5V ③ 3A winding. Parallel and phase 6.3V ④ 8A windings.
③ Parallel and phase 6.3V windings.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: FIRESTONE PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Vert. Osc. Trans.	54X20	B4702	A-5903	10VT1 ①	V405	A-8125	28A03	A-97X
T3	Horiz. Output Trans.	53X356	FB419 ⑥ RF800 * ①	HVO-36 & 23GT1 & MWC-11 * ①	2SR1 =	K094 & 20LR16 * ①	A-8253 * ①	FLY-16 & WC-18 * ①	D-50 & WC-13 * ①
T4	Vert. Output Trans.	51X178	Z1900 ② ③	A-2423 ① ③		V302 ① ③	A-6142 ① ③	26H73 ① ③	A-108X ① ③
T5A B	Yoke(90°) Horiz.(10MC) Vert.(30MC)	A2335-1 ④ A2335 ④ ⑦	DF607 ⑦ ⑧	MDP-92 ⑦	236D1 ⑦ ⑧	T90T1643 ⑦ ⑧	DY-18A ⑦ ⑧	Y-18 ⑦ ⑧	Y-41-1 ⑦ ⑧
T6	Width Coil (3-8MH)	A2331	RF803 ⑨	MWC-8	31LR1	30LR15	WC-8	WC-23	WC-13 ⑩

① Drill new mounting hole(s).
② Use 8 to 1 turns ratio.
③ Connect as auto transformer.
④ Includes resistors R86 and R87.
⑤ Alternate Airline part number.
⑥ Yoke rear cover and centering device.
⑦ Use original rear cover and centering device.
⑧ Use original horizontal yoke damping network.
⑨ Do not use tap.
⑩ Connect to coded red and blue terminals.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
8	9	9	9	9	8	9	9
4	7	7	7	7	1	7	7
3	7	7	7	7	1	7	7
2	4-Also See Note ⑪	4-Also See Note ⑪	4-Also See Note ⑪	"T"-Also See Note ⑪	3-Also See Note ⑪	"T"-Also See Note ⑪	4-Also See Note ⑪
1	3	3	3	3	3	3	3
5	1	1	1	4	1	1	1
Connect Width Coil Across	1 & 5	Terms. #1 & #2 of RF800 Across 3 & 1	MWC-11 Across 3 & 1	212R1 Across 3 & 1	20LR16 Across 3 & 1	6 & 7	WC-18 Across 3 & 1	Red & Blue Terms. of WC-12 Across 3 & 1
Special Notes		⑫	⑫	⑫ ⑬	⑫	⑫	⑫ ⑭	⑫	⑫

⑪ Connect approximately 100-150MMF ⑫ 2KV in series with resistor R104, and connect across horizontal yoke terminals #3 and #7.
⑬ Change values of resistors R55 and R56 as necessary to obtain required peak to peak pulse voltage at plate of V8, AGC Keying tube.
⑭ Ground either terminal #6 or terminal #7.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA: FIRESTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T7	4.7KΩ	3-4Ω	51X178	Z1005	A2930	A3677			

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	REPLACEMENT DATA: FIRESTONE PART No.	QUAM PART No.	RCA TYPE No.	NOTES
SP1	10"	PM	3-4Ω	12A533	10A31	257S1	① Used in some versions.
	8"	PM	3-4Ω	12A528 ①	8A1	229S1	
SP2	4"	PM	3-4Ω	12A532	4A07	223S1	

COILS (RF-IF)

ITEM No.	USE	DC RES. OHMS	DC RES. SEC.	REPLACEMENT DATA: FIRESTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Ant. Matching Trans.	0Ω	0Ω	31TA-413				
L2	Ant Matching Trans	0Ω	0Ω	31TA-413				
L3	FM Trap	0Ω		31T-417				
L4	IF Trap	.3Ω		31T-418-01				
L5A	Ant. RF, Mixer Grid, Osc. Coils	0Ω		31M-302-D				Channel 2.
B	Ant., RF, Mixer Grid, Osc. Coils	0Ω		31M-303-D				Channel 3.
C	Ant., RF, Mixer Grid, Osc. Coils	0Ω		31M-304-D				Channel 4.
D	Ant., RF, Mixer Grid, Osc. Coils	0Ω		31M-305-D				Channel 5.
E	Ant., RF, Mixer Grid, Osc. Coils	0Ω		31M-306-D				Channel 6.
F	Ant., RF, Mixer Grid, Osc. Coils	0Ω		31M-307-D				Channel 7.
G	Ant., RF, Mixer Grid, Osc. Coils	0Ω		31M-308-D				Channel 8.
H	Ant., RF, Mixer Grid, Osc. Coils	0Ω		31M-309-D				Channel 9.
I	Ant., RF, Mixer Grid, Osc. Coils	0Ω		31M-310-D				Channel 10.
J	Ant., RF, Mixer Grid, Osc. Coils	0Ω		31M-311-D				Channel 11.
K	Ant., RF, Mixer Grid, Osc. Coils	0Ω		31M-312-D				Channel 12.
L	Ant., RF, Mixer Grid, Osc. Coils	0Ω		31M-313-D				Channel 13.
L6	Flt. Choke	0Ω		34A-732				
L7	Neut. Coil	0Ω		31B-727				
L8	RF Coil	0Ω		25A-154-01				
L9	Conv. Plate	.1Ω		31UA-506				
L10	19MC Trap	0Ω		A2356		TV-152	6225	
L11	1st. Video IF	.1Ω		A2365		TV-131	6225	
L12	2nd. Video IF	.2Ω	.2Ω	A2363				Includes 47.25MC Trap.
L13	3rd. Video IF	.2Ω	.2Ω	A2364				Includes 41.35MC Trap.
L14	Series Peaking Coil	5.3Ω		9A2375	19-3086	TV-180		30 Microhenries.
L15	Series Peaking Coil	9.5Ω		36A35	19-3093*	TV-181*	6177*	82 Microhenries; Wound On 3.9KΩ Resistor.
L16	Shunt Peaking Coil	90Ω		36A34	19-4400	TV-190	6134	360 Microhenries.
L17	Ref. Coil	1.5Ω		9A2382				
L18	Shunt Peaking Coil	10Ω		36A36	19-3100	TV-181	6177	100 Microhenries.
L19	Shunt Peaking Coil	11Ω		36A1	19-3100a	TV-181a	6177a	100 Microhenries; Wound On 2700 Resistor.
L20	Series Peaking Coil	13.5Ω		36A18	19-4180	TV-184a	6120a	180 Microhenries; Wound On 22KΩ Resistor.
L21	Shunt Peaking Coil	18Ω		36A37	19-3250a	TV-185a	6181a	235 Microhenries; Wound 8.2KΩ Resistor.
L22	1st. Sound IF	3.1Ω		9A2383				
L23	2nd. Sound IF	3.5Ω	3.5Ω	9A2368	17-3495	TV-113		
L24	3rd. Sound IF	3.5Ω	3.5Ω	9A2368	17-3495	TV-113	6203	
L25	Quadrature Coil	5Ω		9A2367	20-1005		1480	
L26	RF Choke	.1Ω		9A2380	19-1001		1.5	1.5 Microhenries.

* Parallel with 3.9KΩ resistor.
■ Parallel with 270Ω resistor.
▲ Parallel with 8.2KΩ resistor.
● Parallel with 22KΩ resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: FIRESTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	NOTES
L27	78Ω		9A2372			6211*				Horiz Osc Tapped @ 55Ω Horiz Waveform.
L28	60Ω		9A2371							

† Enlarge mtg. hole.

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D.C. RESISTANCE	RATINGS INDUCTANCE 10 CURRENT 1000 ~/~	REPLACEMENT DATA: FIRESTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L29	.270A	41Ω	1HY	52X95-4	C5037 ①	C2098 ①	C2326 ①	28C44 ①	C-33X ①

① Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: FIRESTONE PART No. FUSE	FIRESTONE PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	N	4/10A 125V	16X62	16X163	333.400 (N 4/10A)	346009	N 4/10	HN 3/10-1

PARTS LIST AND DESCRIPTIONS (Continued)

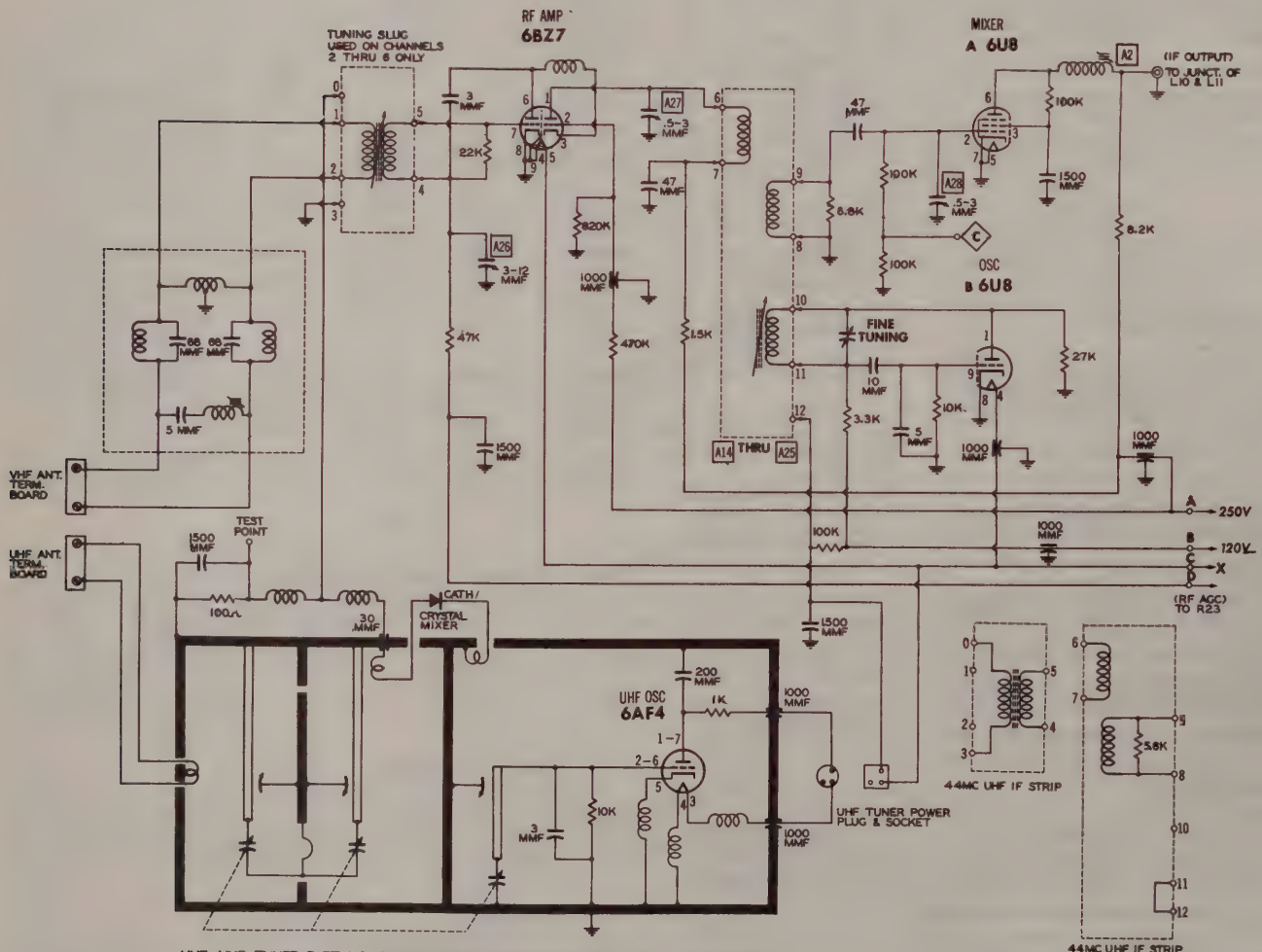
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		FIRESTONE PART No.	SYLVANIA PART No.	
M2	1N295 *	17X190	1N60	Video Detector (Pigtail)

* Some versions may use crystal diode types CK706A or 1N60.

MISCELLANEOUS

ITEM No.	PART NAME	FIRESTONE PART No.	NOTES
M3	Dial Light	7A103	#47
M4	Tuner	25A1137	VHF- Models 13-G-201, 13-G-203, 13-G-204
M5	Tuner	25A1139	VHF-UHF Combination; Models 13-G-202, 13-G-205, 13-G-206
M6	Video Det. Assy.	9A2370	Includes M2, Coils and Capacitors
M7	Centering Magnet	2A435	Includes Deflection Yoke (T5) Rear Cover
M8	Ion Trap	2A421	
B3	Trimmer Cap.	17A271	Horizontal Drive (170-700MMF)
	Knob	S-38A69	Fine Tuning Assembly-VHF Models
	Knob	S-38A68	Channel Selector Assembly-VHF Models
	Knob	S-38A70	Contrast Assembly-UHF-VHF Models
	Knob	S-38A71	On-Off-Volume Assembly-UHF-VHF Models
	Knob	10A858-2	Fine Tuning Assembly (Mahogany Cabinets) UHF Models
	Knob	10A858-3	Fine Tuning Assembly (Blond Cabinets) UHF Models
	Knob	S-38A72	VHF Channel Selector Assembly -UHF Models
	Knob	S-38A73	UHF Channel Selector Assembly-UHF Models
	Knob	S-38A74	On-Off-Volume Assembly-UHF Models
	Knob	10A861-1	Secondary Controls (3 used)

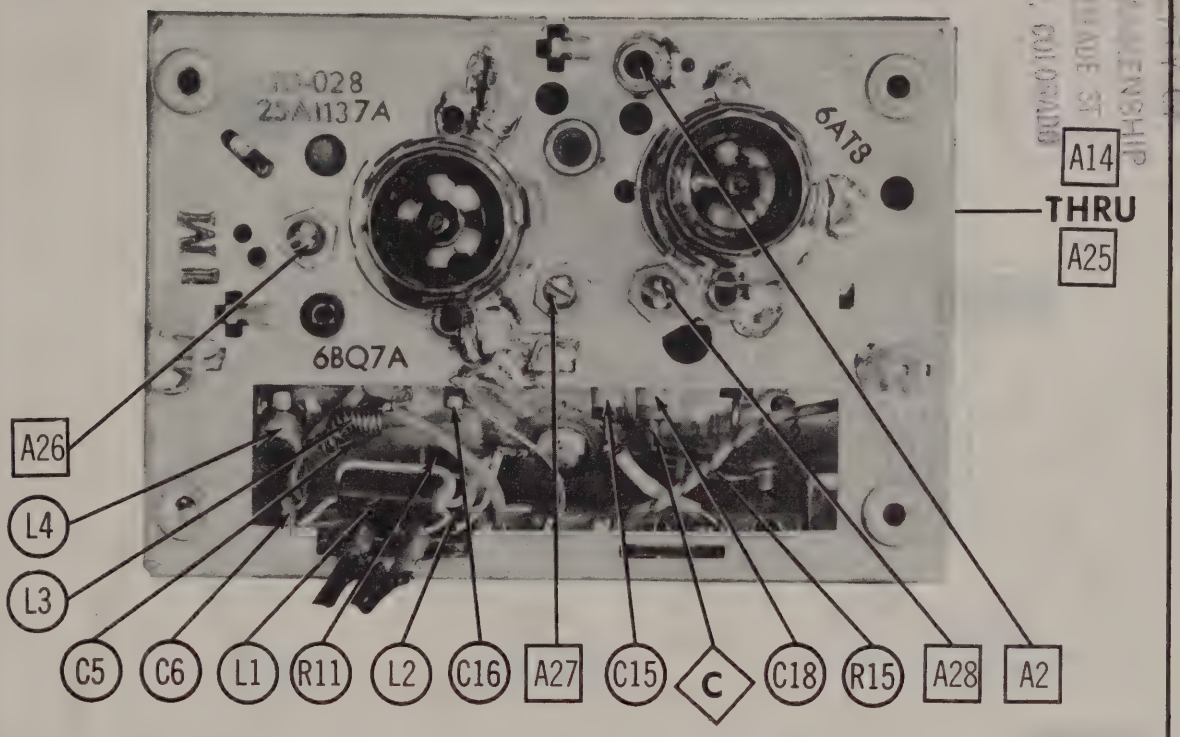


UHF-VHF TUNER PART NO. 25A1139 USED WITH MODELS WG-5112A, AND WG-5115A

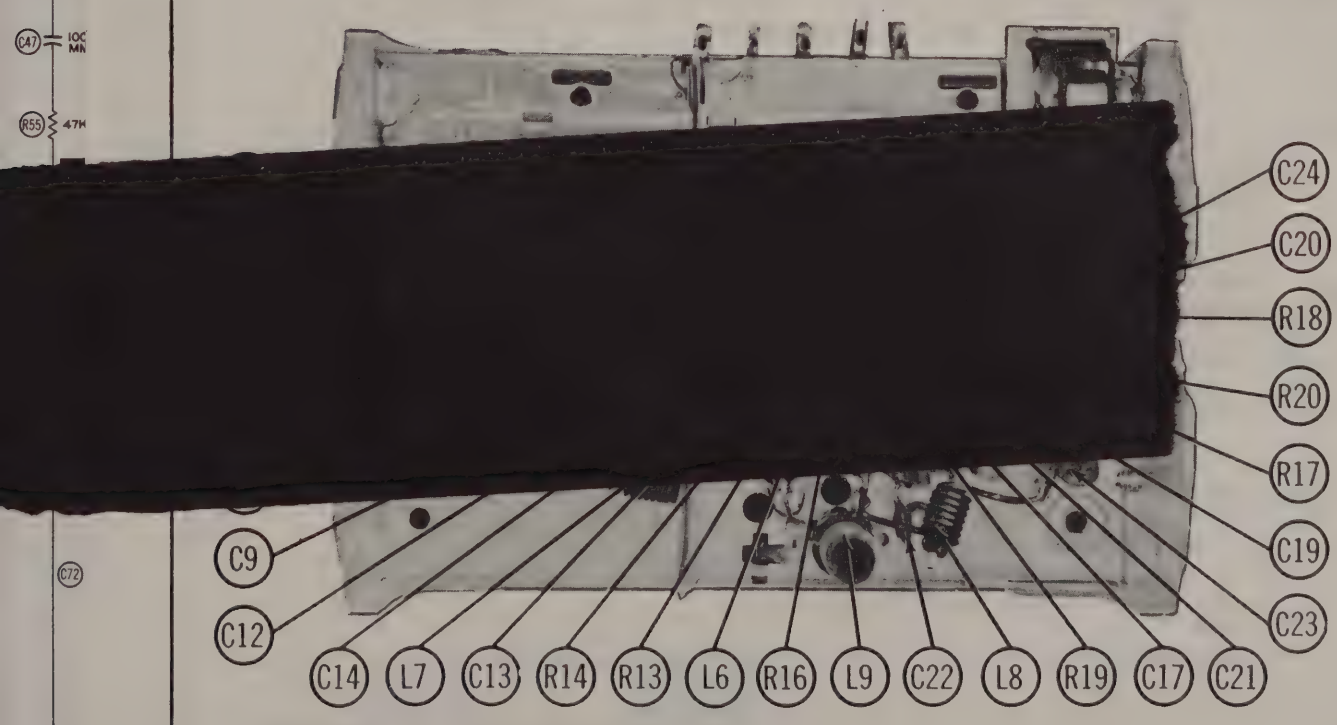
A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1956

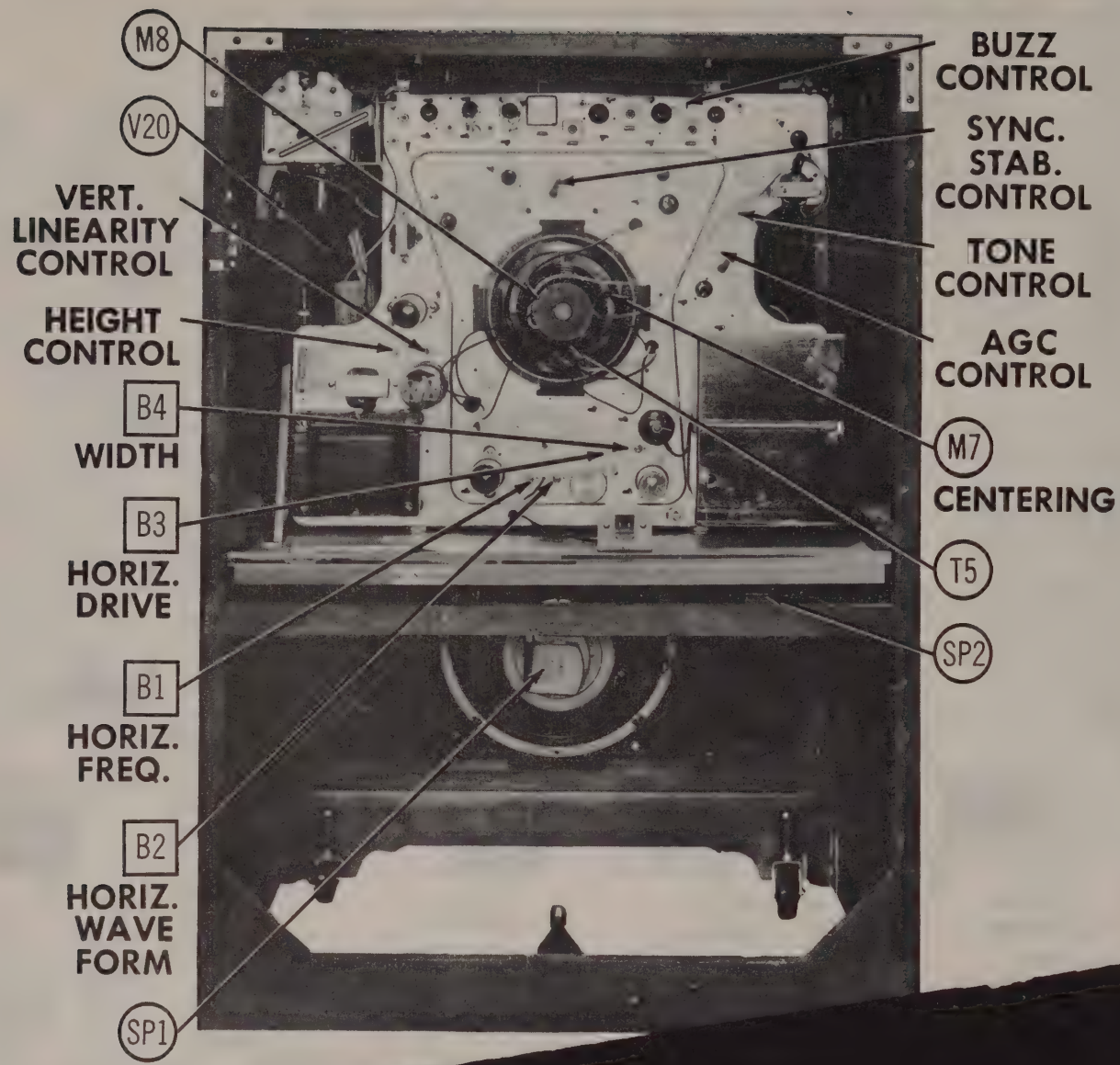
UHF VHF TUNER SCHEMATIC



RF TUNER-TOP VIEW



RF TUNER-BOTTOM VIEW



...range position and ...frequency slug (B1) until the picture synchronizes horizontally.

2. Connect the vertical amplifier of an oscilloscope thru 10MMF to point (D). Connect the low side to chassis. Adjust the waveform slug (B2) until a waveform similar to Fig. 6 is obtained. While making this adjustment, keep the picture in sync with the horizontal hold control and if necessary, B1.

...clockwise so that the picture appears ...be washed out. Turn the horizontal drive control (B3) clockwise until a white vertical line appears and then back slightly counter clockwise until the line disappears.

4. Adjust the width control (B4) until the picture just fills the picture mask horizontally. Reset contrast and brightness controls for normal picture.

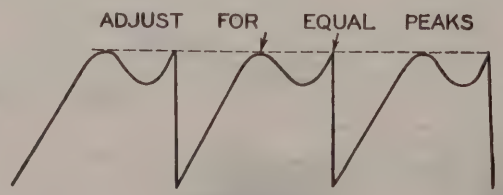
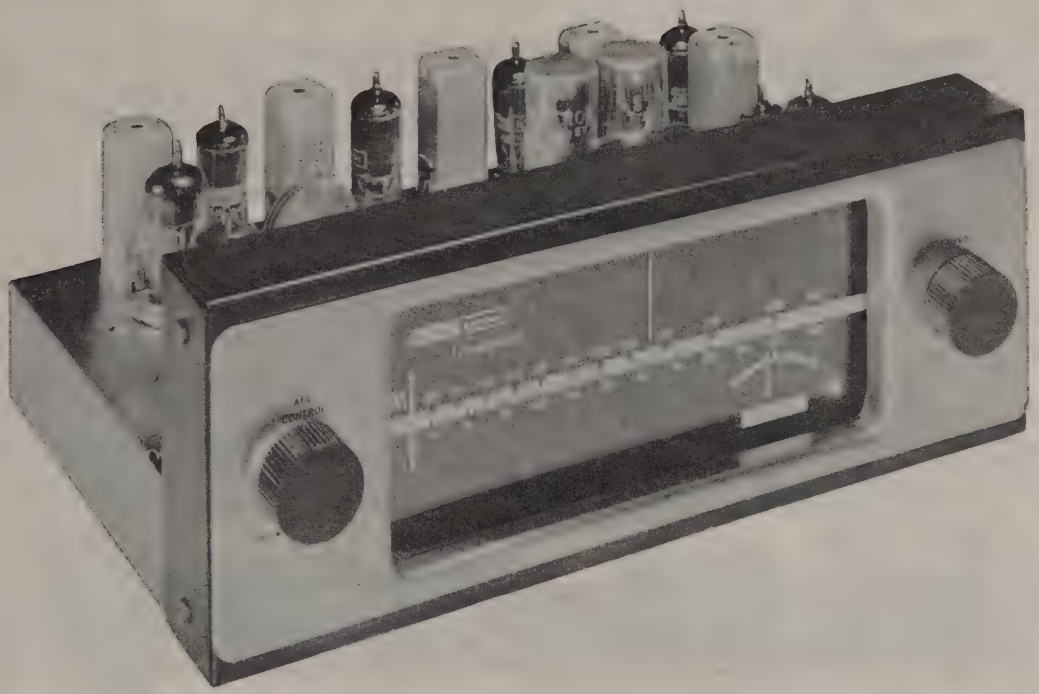


FIG. 6

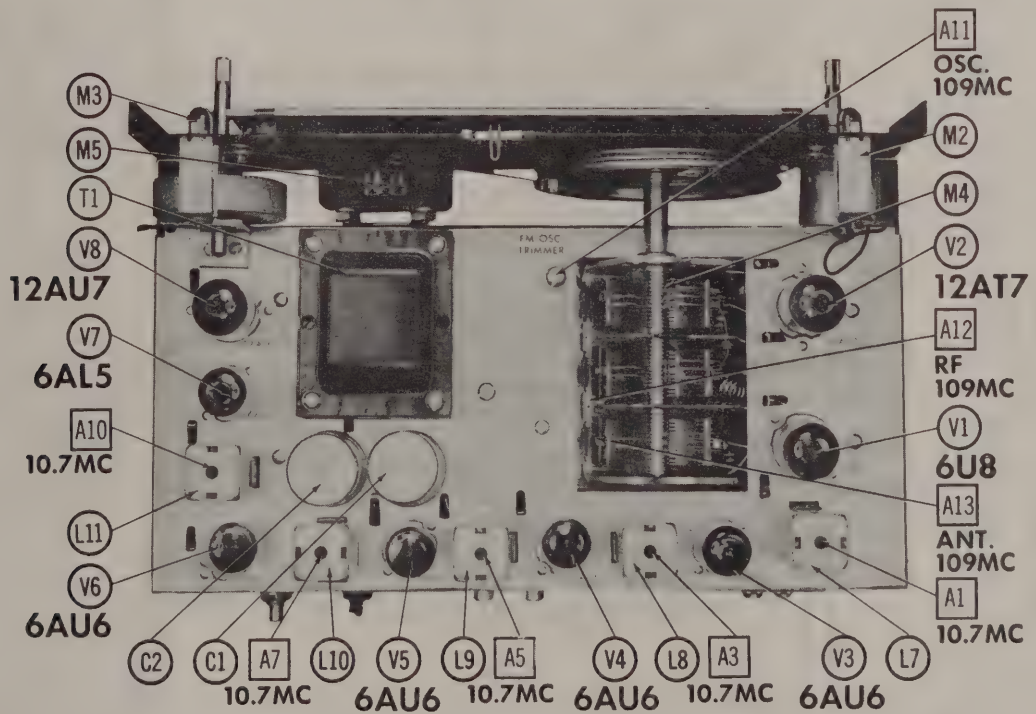
HARMAN-KARDON
MODEL A-400



PROPERTY OF
L. F. BLANKENSHIP
3[illegible] EAGLE ST.
DENVER, COLORADO

HARMAN-KARDON
MODEL A-400

TRADE NAME	Harman-Kardon Model A-400
MANUFACTURER	Harman-Kardon, Inc., 520 Main St., Westbury L. I., N. Y.
TYPE SET	AC Operated FM Superheterodyne Tuner
TUBES (Eight)	Types 6U8 RF Amplifier-Mixer, 12AT7 Oscillator-AFC, 6AU6 1st IF Amplifier, 6AU6 2nd IF Amplifier, 6AU6 1st Limiter, 6AU6 2nd Limiter, 6AL5 Discriminator, 12AU7 Meter Amplifier-Cathode Follower
POWER SUPPLY	105-125 Volts AC - 60 Cycles
TUNING RANGE—	FM 88M - 108MC RATING .30 Amp. @ 117 Volts AC



"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1956 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America
G414

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amp.-Mixer	6U8	
V2	Oscillator-AFC	12AT7	
V3	1st IF Amplifier	6AU6	
V4	2nd IF Amplifier	6AU6	
V5	1st Limiter	6AU6	
V6	2nd Limiter	6AU6	
V7	Discriminator	6AL5	
V8	Meter Amplifier-Cathode Follower	12AU7	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Harman-Kardon PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■40	150	JE22637	AFH2-14	XB002	FP212	TMD-11	D-060	R2222*
B	▲40	150							
C2A	▲40	150	JE22637	AFH2-14	XB002	FP212	TMD-11	D-060	R2222*
B	■40	150							

* Non catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Harman-Kardon PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C4	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C5	47			BPD-000047	DD-470	G033	831-470	UC-5447	5GA-Q47	
C6	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C7	2.2			NP0-SI2.2	TCZ-2R2	TZ05	NP0A-2R2		5TCCB-V22	
C8	4.7			N750-SI5	TCN-5	N011	N750A-050	NT-555	5TCUB-V5	Note 1
C9	100			N750-DI100	TCN-100	N042	N750L-101	NT-531	5TCU-T1	
C10	10			N750-DI10	TCN-10	N018	N750A-100	NT-541	5TCU-Q1	
C11	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C12	10			N750-DI10	TCN-10	N018	N750A-100	NT-541	5TCU-Q1	
C13	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C14	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C15	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C16	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C17	2.2			NP0-SI2.2	TCZ-2R2	TZ05	NP0A-2R2		5TCCB-V22	Note 2
C18	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C19	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C20	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C21	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	Note 2
C22	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C23	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	Note 2
C24	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C25	47			BPD-000047	DD-470	G033	831-470	UC-5447	5GA-Q47	
C26	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C27	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C28	47			BPD-000047	DD-470	G033	831-470	UC-5447	5GA-Q47	
C29	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C30	47			BPD-000047	DD-470	G033	831-470	UC-5447	5GA-Q47	
C31	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C32	.1	200		P288N-1	DF-104	CUB2P1		PT401	2TM-P1	
C33	.01	200		BPD-01	D6-103	CUB4S1	GP3-333-103	PT411	4TM-S1	
C34	.01	200		BPD-01	D6-103	CUB4S1	GP3-333-103	PT411	4TM-S1	
C35	.1	200		P288N-1	DF-104	CUB2P1		PT401	2TM-P1	
C36	.05	600		BPD-05	DF-503	CUB6S5		PT615	6TM-S5	Note 2

Note 1: Some versions use 10MMF in this application.
Note 2: Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Harman-Kardon PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	RV35931	AB-70	A47-1Meg-Z	Q13-137	U-53	AFC
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	KB-1	SWE-21	76-1	US-26	Attach to R1A
D	Cover		Not Req.	KB-5	Not Req.	Not Req.	Not Req.	Attach to R1C
R2A	1Meg	½	RV35996	AB-70	A47-1Meg-Z	Q13-137	U-53	Output Level
B	Shaft		Not Req.	AK-1	FKS-½	Not Req.	Not Req.	Attach to R2A

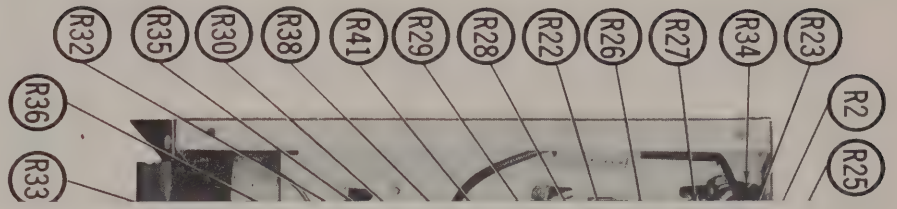
CHASSIS—BOTTOM VIEW

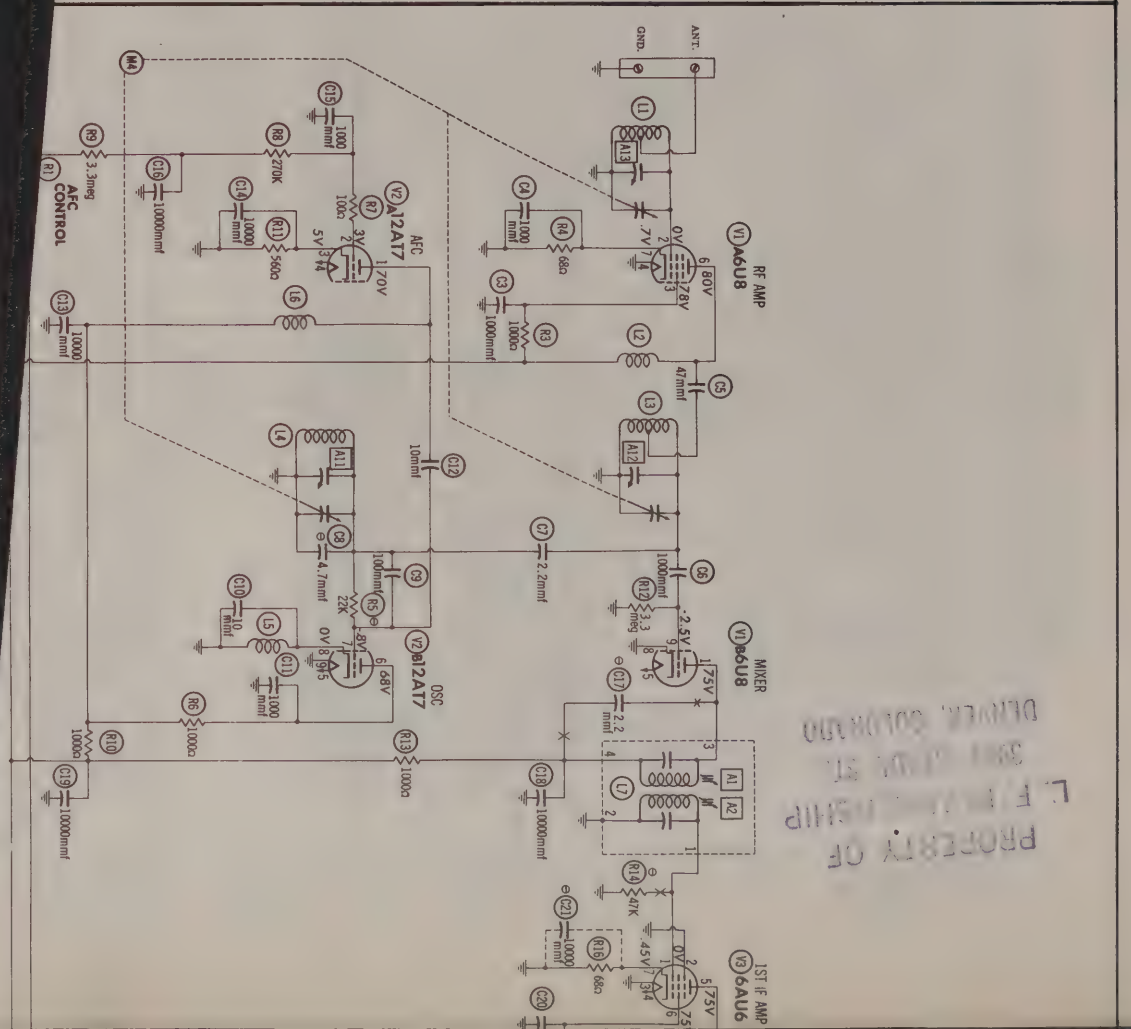
PARTS LIST AND

All wattages 1/2

ITEM No.	RATING		REPLACEMENT DATA	
	OHMS	WATT	Harman-Kardon PART No.	IRC PART No.
R3	1000Ω			BTS-1000
R4	68Ω			BTS-68
R5	22K			BTS-22K
R6	1000Ω			BTS-1000
R7	100Ω			BTS-100
R8	270K			BTS-270K
R9	3.3Meg			BTS-3.3Me
R10	1000Ω			BTS-1000
R11	560Ω			BTS-560

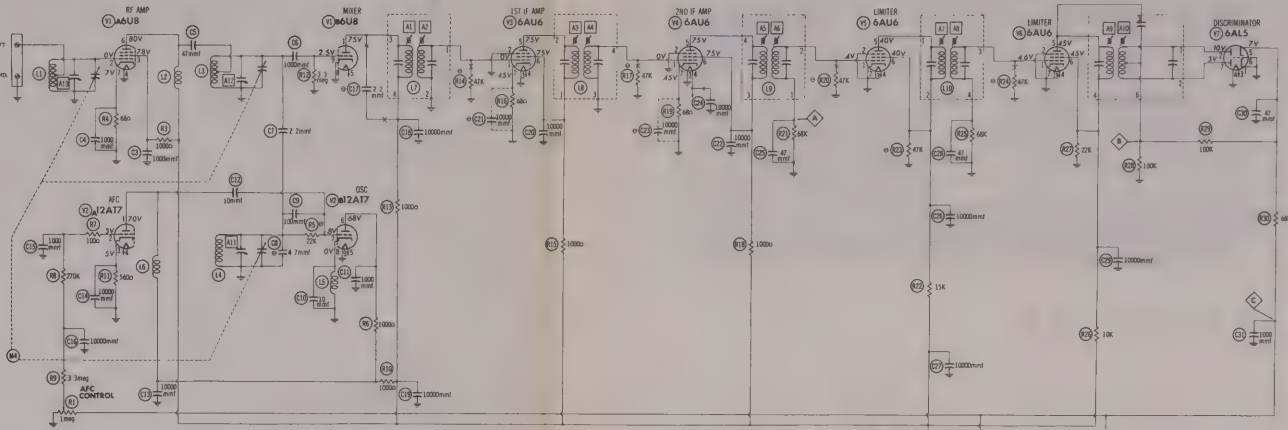
CHASSIS—BOTTOM VIEW





A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1956

PROPERTY OF



RESISTANCE READINGS

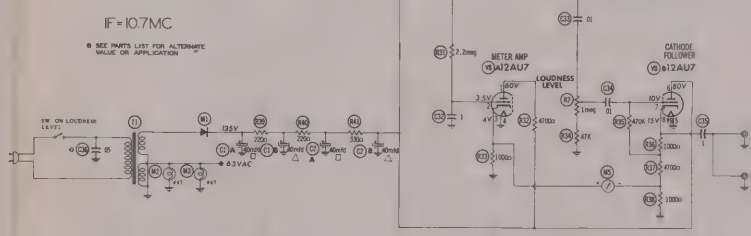
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6U8	11.7KΩ	0Ω	11.7KΩ	0Ω	3Ω	1.7ΩΩ	68Ω	0Ω	3.3meg
V2	12AT7	11.7KΩ	3.3Meg	560Ω	3Ω	3Ω	12.7KΩ	22KΩ	7Ω	0Ω
V3	6AU6	8Ω	0Ω	0Ω	3Ω	11.7KΩ	11.7KΩ	68Ω		
V4	6AU6	8Ω	0Ω	0Ω	3Ω	11.7KΩ	11.7KΩ	68Ω		
V5	6AU6	68KΩ	0Ω	0Ω	3Ω	110KΩ	110KΩ	0Ω		
V6	6AU6	68KΩ	0Ω	0Ω	3Ω	110KΩ	110KΩ	0Ω		
V7	6AL5	0Ω	100KΩ	3Ω	0Ω	390KΩ	0Ω	100KΩ		
V8	12AU7	15.5KΩ	2.5meg	1KΩ	0Ω	0Ω	1.77ΩΩ	476KΩ	6.7KΩ	3Ω

† MEASURED FROM OUTPUT OF M1

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom view.
3. Resistance readings are from chassis to common negative.
4. Line voltage assumed at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at minimum, no signal applied for voltage measurements

IF = 10.7MC

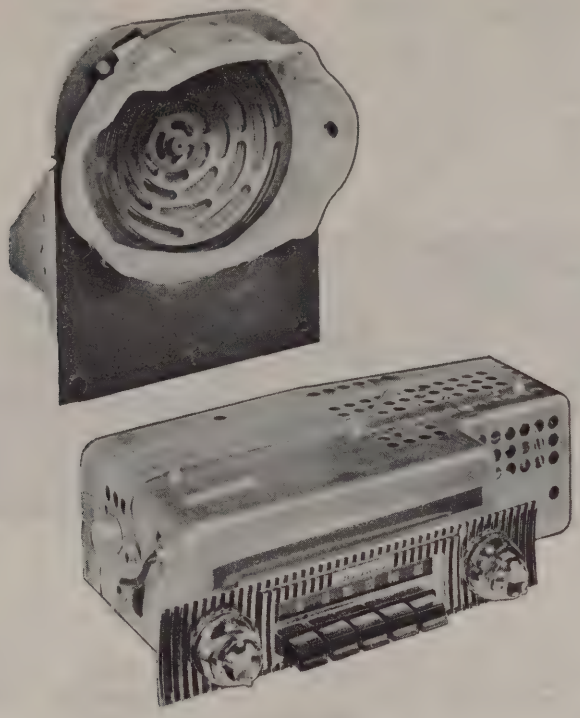
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION



A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1956

OLDSMOBILE
MODEL 983334



TRADE NAME	Oldsmobile Model 983334 (For 1956 Oldsmobile Automobiles)
MANUFACTURER	Delco Radio Div., General Motors Corp., Kokomo, Indiana
TYPE SET	Battery Operated Custom Built AM Superheterodyne Automobile Receiver
TUBES (Seven)	Types 12BA6 RF Amplifier, 12BE6 Converter, 12AU6 IF Amplifier, 12BF6 Det-AVC-AF Amp., (2)12V6GT Output, 0Z4 Rectifier
POWER SUPPLY	12 Volt Storage Battery
TUNING RANGE—BROADCAST	540KC - 1600KC
RATING	3 Amp. @ 12.6 Volts DC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) ot 12BE6 (V2). Low side to chassis.	262KC (400~ Mod.)	High frequency end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	68MMFD	High side to antenna receptacle. Low side to chassis.	1615KC	"	"	A5, A6, A7	Check mechanical setting of oscillator core (A8). Core should be positioned so that slotted end is 1 25/32" from mounting end of coil form. If core requires adjustment, dissolve seal on core stud, make adjustment and reseal core stud. Adjust A5, A6 and A7 in order given for maximum output.
3.	"	"	1000KC	Tune to 1000KC signal.	"	A9, A10	Adjust for maximum output.
4.	"	"	1615KC	High frequency end stop.	"	A6, A7	Readjust for maximum output.
5.	"	"	1000KC	Tune to 1000KC signal.	"		With dial pointer adjustment screw, set dial pointer to the first "0" of "100" on dial scale.
6.	With radio installed in car and antenna fully extended, tune to weak station between 600KC and 1000KC and adjust A7 for maximum volume.						

PUSH BUTTON ALIGNMENT

Press push button to the right and pull all the way out. Tune manually to desired station, then press push button all the way in. Repeat procedure for remaining push buttons.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1956 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12AU6	
V4	Det-AVC-AF Amp.	12BF6	
V5	Output	12V6GT	
V6	Output	12V6GT	
V7	Rectifier	0Z4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■20	400	6322	AFH3-120	C099	FP345.8	TMT-106	T-550	TVL-3678
B	▲20	400							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA DELCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.05	200	6512	BPD-05	DF-503	CUB2S5		PT415	2TM-S5	
C3A	15			NP0-D15	TCZ-15	Z021	NP0K-150		5TCC-Q15	Note 1
B	39			NP0-D39	TCZ-39	Z031	NP0L-390		5TCC-Q39	Note 1
C4	180		7257424							
C5	.05	400	6512	BPD-05	DF-503	CUB4S5		PT415	4TM-S5	
C6	10	500	G-100	NP0-D10	TCZ-10	22R5Q1	NP0A-100	MCB215	MS-41	
C7	2000		6528	BPD-002	DD-202	K072	801-002	DC522	5HK-D2	
C8	220	500	G-221	NP0-S1220	TCZ-220	22R5T22	811-221		MS-322	
C9	.005	600	6531	BPD-005	DD-502	CUB6D5	GP2-333-502	PT625	6TM-D5	
C10	.01	400	6510	BPD-01	D6-103	CUB4S1	GP3-333-103	PT411	4TM-S1	
C11	10000		6510	BPD-01	DD-103	K082	811-01	DC511	5HK-S1	
C12	.1	400	6513	P488N-1	DF-104	CUB4P1		PT401	4TM-P1	
C13	100		6371	N750-D100	TCN-100	N042	N750L-101	NT-531	5TCU-T1	
C14	.003	1000	6563	P1088N-003	DD-302	CUB16D3	1R5KV-332	PT1623	10TM-D3	
C15	.007	1600	H-702	P1688N-007	DD16-702	CUB16D7		PT1627	16TM-D7	
C16	.47	100	6592	VHC36		ST2P5		RF480	68P20	
C17	.47	100	6592	VHC36		ST2P5		RF480	68P20	
C18	.47	100	6592	VHC36		ST2P5		RF480	68P20	

Note 1: In some versions C3A and C3B are single units. (C3A part number, 6361; C3B part number, 6366.)

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2Meg	½	7266887	F1-68	RTV-584C	*QJ1005A	UE1743S	Tone (Panel)
B	300K	½		R2-38				Volume (Rear)-Tapped at 55K
C	Bushing			AK-28	XB-1			Attach to R1A
D	Switch			KB-4				Attach to R1B

* Concentrikit Equivalent: K-8 Kit, Base Elements & Shafts; B13-139 & P13-113 (Panel)
B18-132X & R1-126 (Rear)
S22 (Bushing)
76-1 (Switch)

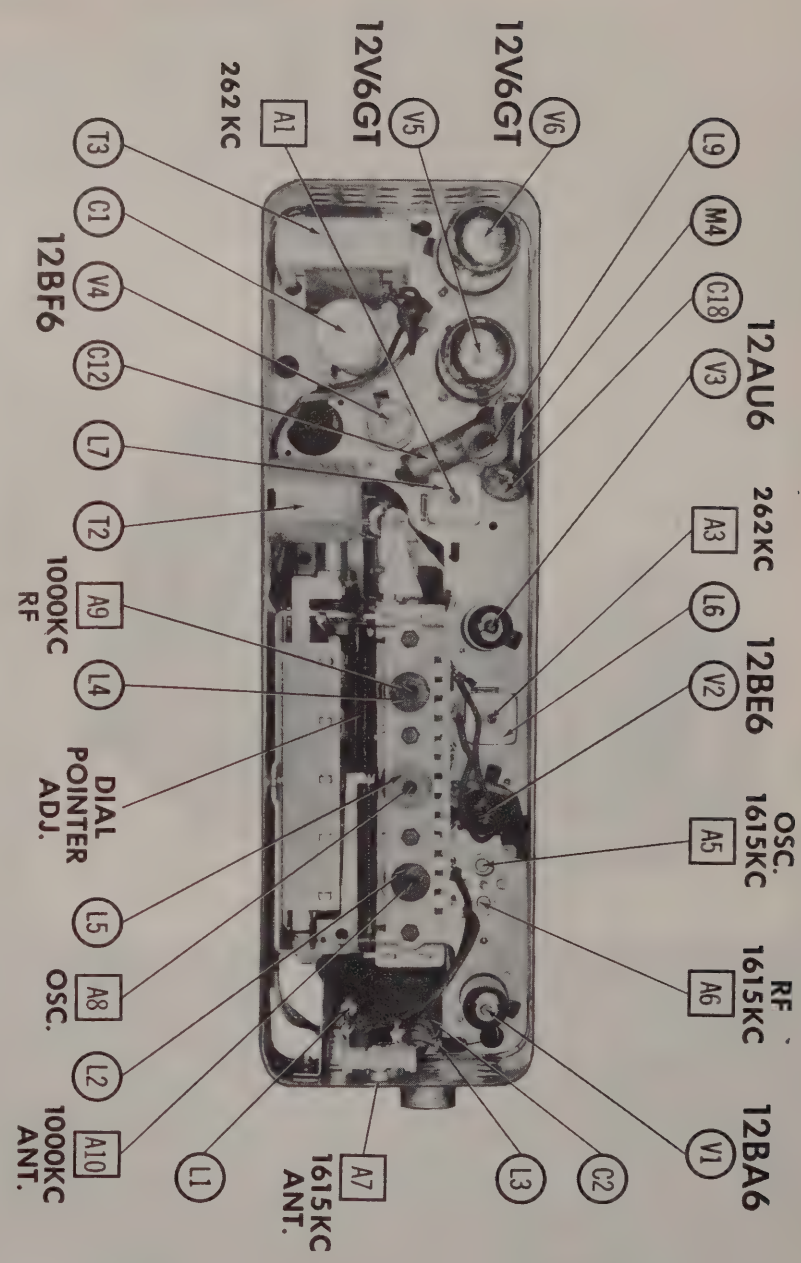
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA DELCO PART No.	IRC PART No.	NOTES
R2	2.2Meg		1239	BTS-2.2Meg	
R3	10K	1	1137	BTA-10K	
R4	68Ω		1215558	BTS-68	
R5	330K		1229	BTS-330K	
R6	1Meg		1235	BTS-1Meg	
R7	22K		1215	BTS-22K	
R8	15K	2	1277	BTB-15K	
R9	270Ω		1118	BTS-270	
R10	1Meg		1235	BTS-1Meg	
R11	47K		1219	BTS-47K	
R12	47K	1	1259	BTA-47K	
R13	2200Ω		1129	BTS-2200	
R14	1000Ω		1125	BTS-1000	
R15	820K		1214561	BTS-820K	
R16	1Meg		1235	BTS-1Meg	
R17	47K		1219	BTS-47K	
R18	360Ω 5%	1	7234563	BW1-360 5%	
R19	1800Ω	2		BW2-1800	Note 1
R20	15K	1	1213	BTA-15K	

Note 1: Mfgr. states to replace with part #1171 & 1167 in parallel.

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW

PROPERTY OF
F. F. FLEMING
3804 ELATE ST
DENVER, COLORADO

PARTS LIST AND DESC

TRANSFORM

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	SEC. 3	DELCO PART No.
T1	12.6V @ 2.4A	384VCT @ .062A			6067

TRANSFORMER

ITEM No.	RESISTANCE	REPLACEMENT DELCO PART No.	Halldorson PART No.	Merit PART No.

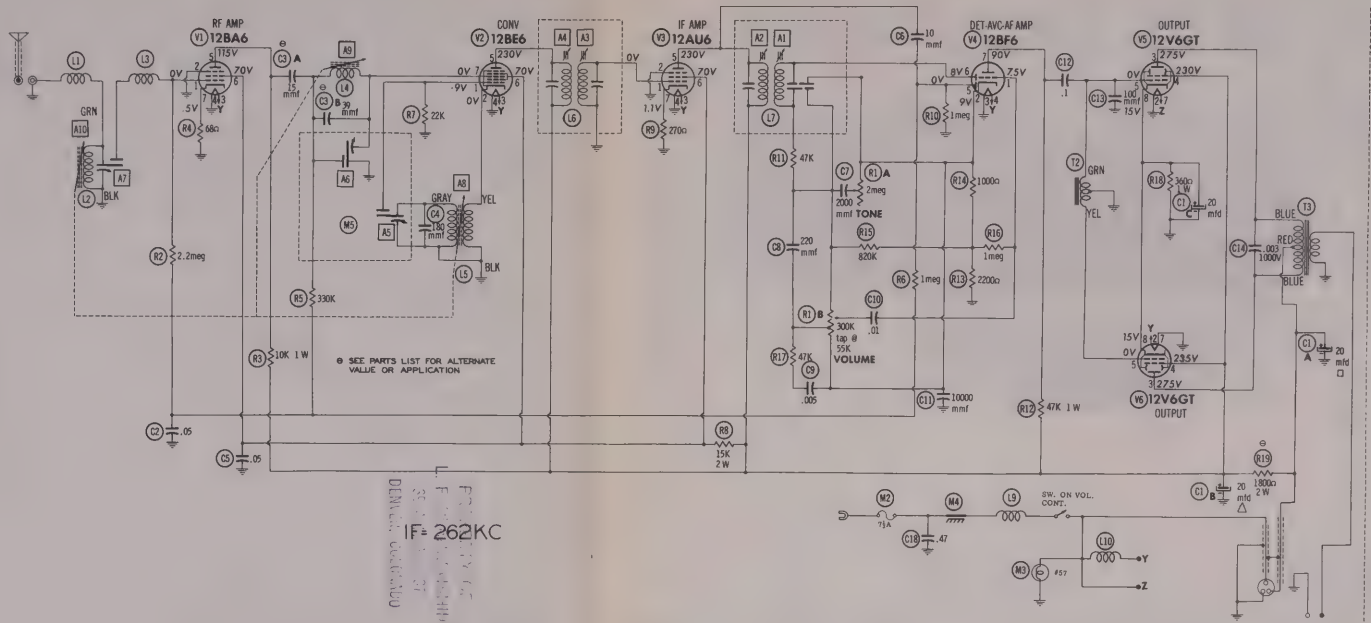
V7	0Z4	0Ω

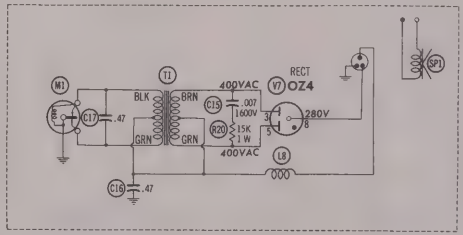
f MEASURED TO
NC NO CONNECTION.
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on components values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1956





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	12BA6	4.2Meg	0Ω	1.6Ω	0Ω	†12K	17K	68Ω	
V2	12BE6	22K	1.1Ω	1.6Ω	0Ω	†1800Ω	17K	2.3Meg	
V3	12AU6	42Ω	0Ω	1.6Ω	0Ω	†1800Ω	17K	270Ω	
V4	12BF6	1Meg	3200Ω	0Ω	1.6Ω	1Meg	870K	†50K	
V5	12V6GT	TP	0Ω	†220Ω	†1800Ω	1000Ω	TP	1.6Ω	360Ω
V6	12V6GT	0Ω	1.6Ω	†190Ω	†1800Ω	850Ω	0Ω	0Ω	360Ω
V7	0Z4	0Ω	NC	220Ω	NC	245Ω	NC	TP	20K

† MEASURED TO PIN 8 OF V7.
NC NO CONNECTION.
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 13.6 volts for voltage readings.
5. Nominal tolerance on components values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1956

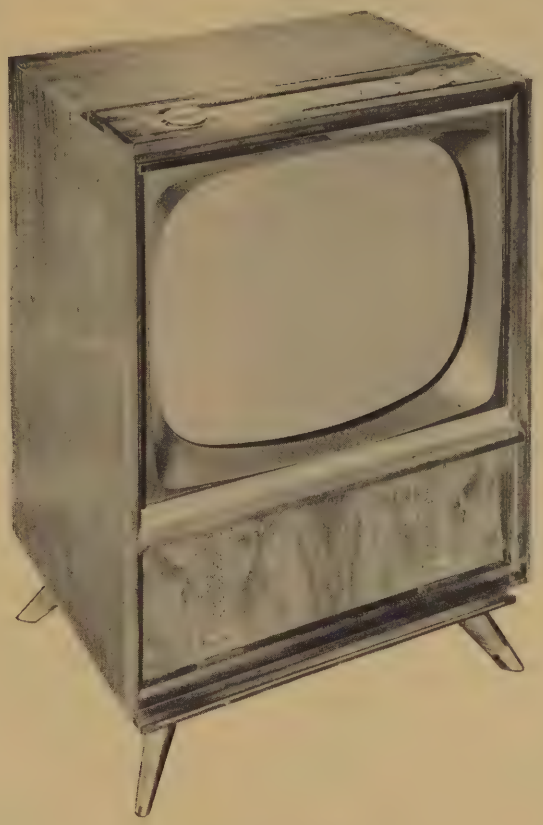
PHOTOFACT* Folder

PHILCO MODELS 24D6126L, M, 24D6320C, M (Ch. TV-444)

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete volume* of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



PHILCO MODEL 24D6126M

TRADE NAME	Philco Models 24D6126L, 24D6126M, 24D6320C, 24D6320M (Ch. TV-444)
MANUFACTURER	Philco Corporation, Tioga & "C" Streets, Philadelphia, Pa.
TYPE SET	Television Receiver
TUBES	Twenty
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING 1.9 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

INDEX

Alignment Instructions 6, 7
Disassembly Instructions 1
Horizontal Sweep Circuit Adjustments 16
Parts List and Descriptions 12, 13, 14
Photographs
- Cabinet-Rear View 16
- Chassis-Bottom View 4, 9
- Chassis-Top View 3
- RF Tuner 15
- Sound IF-Video Output Sub-Chassis 11
- Sweep Circuit Sub-Chassis 10
- Video IF Sub-Chassis 10

Resistance Measurements 8
Servicing in the Field 1
Schematic 2
Tube Failure Check Chart 5
Tube Placement Chart (Bottom View) 8
Tube Placement Chart (Top View) 5

PHILCO MODELS 24D6126L, M, 24D6320C, M (Ch. TV-444)

PROPERTY OF
L. F. BLANKENSHIP
3914 MEADE ST.
DENVER, COLORADO

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1956 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove channel selector, fine tuning, tone and volume control knobs.

2. Remove 2 phillip-head screws from bar assembly, so that 5 small control knobs may be removed.

3. Remove 2 hex-head screws holding control panel, press the panel to the rear on the cabinet until trim at front is cleared. Hold panel at the volume and channel selector positions and pull panel forward and up until trim is cleared.

4. Lay panel on cabinet top so that off/on switch and stepper switch can be removed. Press dovetail end of switch unit down and slide free of mounting bracket.

5. Remove 7 wood screws. Remove rear cover.

6. Remove speaker leads.

7. Remove AC interlock bracket and "remote touch tuning" socket from cabinet.

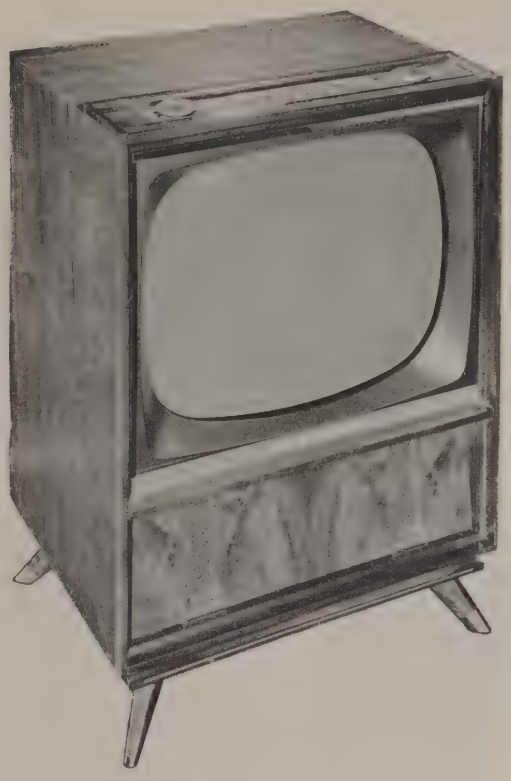
8. Remove 2 wood screws holding 2 brackets from sides of cabinet.

9. Remove 2 chassis bolts and 2 hex nuts at the top front holding picture tube and control panel bracket to cabinet.

10. Remove 2 hex nuts from bottom picture tube mounting bracket.

11. Remove chassis.

12. Remove 6 speaker nuts. Remove 2 speakers.



MODEL	CHASSIS
24D6126M.....	TV-444

PROPERTY OF
L. F. HUNTSHIP
3[illegible] EAST
DENVER, COLORADO

PHILCO MODELS 24D6126L, M, 24D6320C, M (Ch. TV-444)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

For touch-up adjustment of VHF tuner oscillator , it is necessary to remove the chassis from the cabinet. (See disassembly instructions).

PICTURE TUBE SAFETY GLASS CLEANING

Remove 4 wood screws holding metal molding at bottom edge of the safety glass. Remove molding and safety glass. Use extreme caution when removing safety glass.

SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 5.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Set the horizontal hold control to the center of its range and adjust the horizontal oscillator control (R8) until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (L29) located on tube side of the chassis.

FUSES

Three fuses are used. One for LV power supply protection and two for remote control input protection. (For location see tube placement chart).

CENTERING

Centering is accomplished mechanically by means of a centering lever on the PM focusing assembly. Adjust the centering lever from side to side, and up and down until the picture is properly centered.

BUILT-IN ANTENNA TUNING

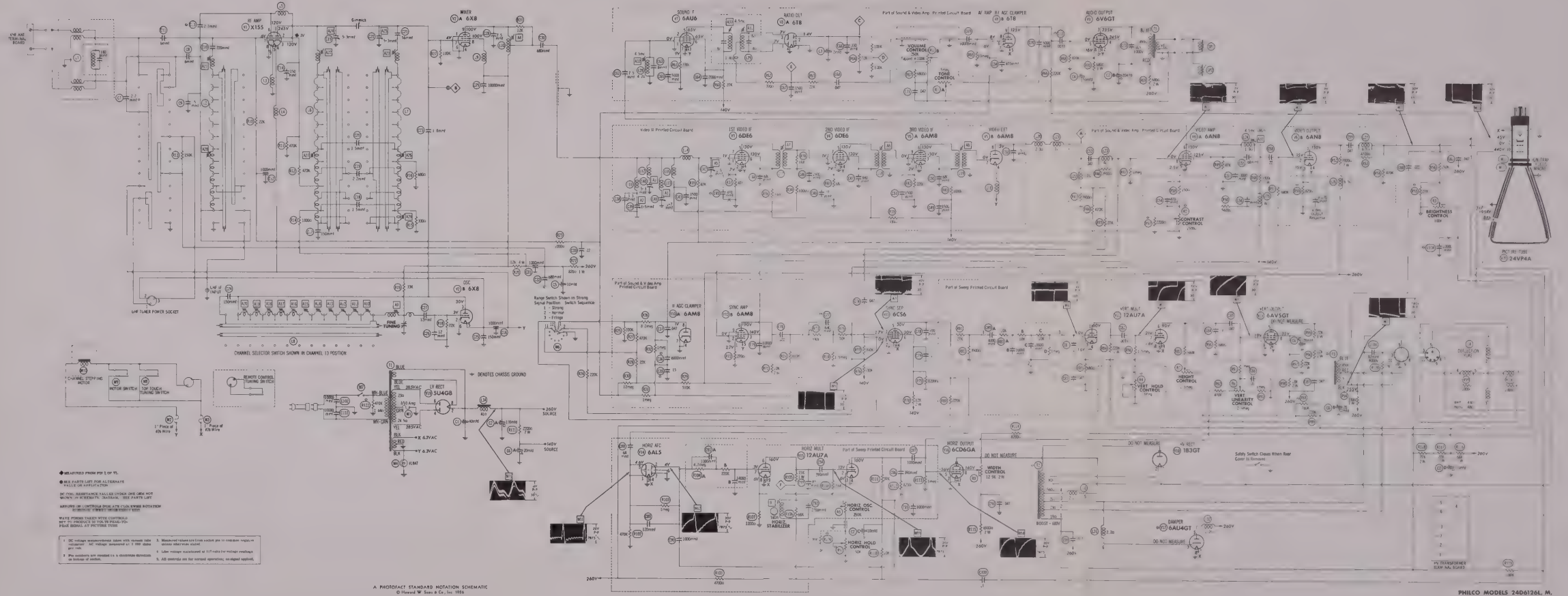
Built-in antenna can be adjusted from rear of the cabinet. Adjust for a picture of maximum contrast and minimum ghosts.

ANTI-PIN CUSHION ADJUSTMENT

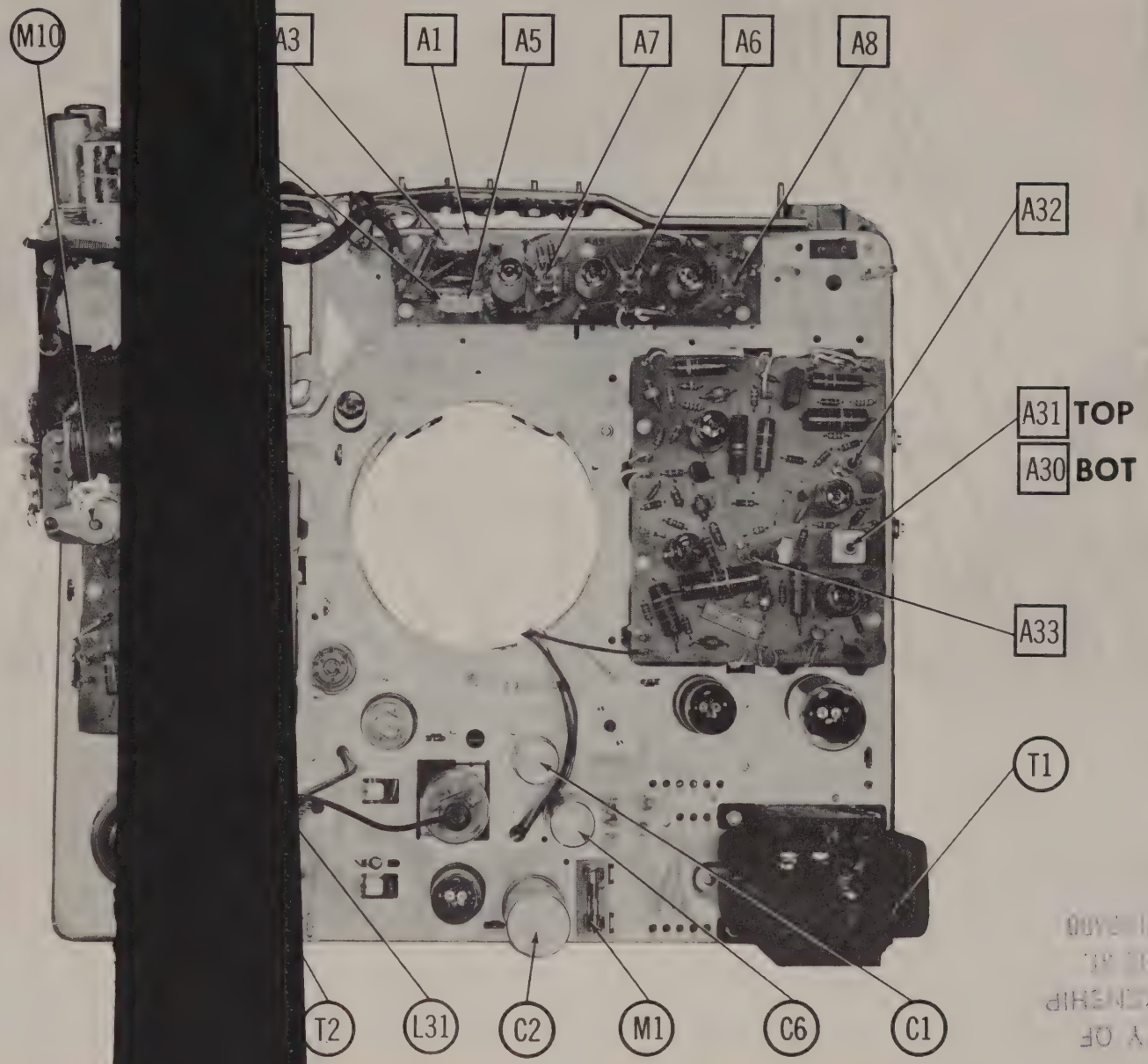
Reduce the picture size so that the sides of the raster are visible, and position the magnets so that all sides are straight lines and the corners are at right angles.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1956 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

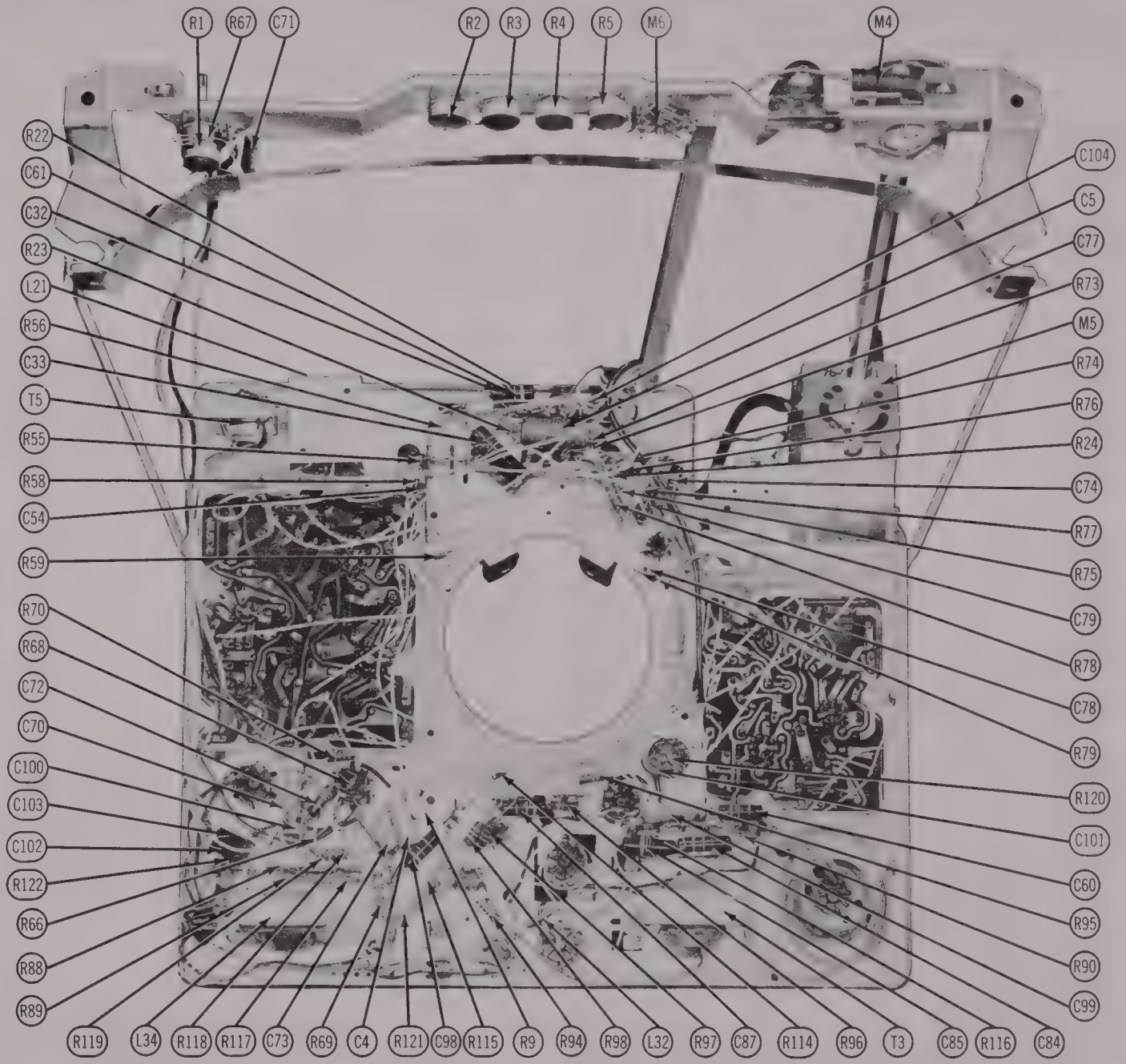

PHILCO MODELS 24D6126L, M, 24D6320C, M (Ch. TV-444)
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W Sams & Co, Inc 1956
DENOTES CHASSIS GROUND
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
Range Switch Shown in Strong
Signal Position - Switch Sequence
1 - Strong
2 - Normal
3 - Fringe
DO NOT MEASURE
Safety Switch Closes When Rear Cover Is Removed
PICTURE TUBE
V17 24VP4A

PHILCO MODELS 24D6126L, M, 24D6320C, M (Ch. TV-444)



CHASSIS TOP VIEW

PHILCO MODELS 24D61261, M, 24D6320C, M (Ch. TV-444)



CHASSIS-BOTTOM VIEW

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Allow 15 minutes for receiver and test equipment to warm up. There must be a good bond between test equipment and chassis. Connect the deflection yoke and speaker during alignment. Do not remove the horizontal oscillator tube (V15) to disable the high voltage. The high voltage lead should be securely tape away from the chassis. The IF shield must be in place during alignment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 2.5 volt battery to the ungrounded side of C33. Positive lead to chassis. Connect the negative lead of a 5 volt battery to pin 8 (plate) of the 6AM8 (V10). Positive to chassis. Set the range switch to center position, contrast control fully clockwise and the volume control fully counter clockwise.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to point (B). Low side to chassis.	Not used	41.25MC (400∿ 30% Mod.)	UHF	Vert. Amp. thru 10KΩ to point (A). Low side to chassis.	A1	Adjust for MINIMUM indication on scope.
2.	"	"	"	47.25MC	"	"	A2, A3	"
3.	"	"	"	45.0MC	"	"	A4	Adjust for maximum indication on scope. Use only enough sweep generator output to provide usable pattern on scope.
4.	"	"	"	42.7MC	"	"	A5, A6	"
5.	"	"	"	45.5MC	"	"	A7	"
6.	"	"	"	44.0MC	"	"	A8	"
7.	Fig. 1	Across antenna terminals thru matching network (Fig. 1).	69MC (6MC Swp)	67.25MC 70.75MC	4	"		Check response curve for curve limits and marker positions as in Fig. 2. If necessary, readjust A4 and A7 for proper curve level, A8 to level top of curve and A6 for proper slope on low frequency side of curve.

OSCILLATOR ALIGNMENT

Connect the negative lead of a 1.5 volt battery to the ungrounded side of C33.
Positive to chassis.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	Not used	257MC	13	Vert. Amp. thru 10K to point (B). Low side to chassis.	A9	Adjust for zero beat. If regeneration occurs, increase bias, bias may be increased up to 4 or 5 volts, if necessary.
				251MC	12		A10	
				245MC	11		A11	
				239MC	10		A12	
				233MC	9		A13	
				227MC	8		A14	
				221MC	7		A15	
				129MC	6		A16	
				123MC	5		A17	
				113MC	4		A18	
				107MC	3		A19	
				101MC	2		A20	

RF AND MIXER ALIGNMENT

Leave bias connected as under "Oscillator Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for hori
The sweep generator output lead should be terminated with its characteristic impedance, usually 50

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.								
								lines in Fig. 4A and 4B. If necessary, adjust for mirror image of original response curve. (Tilt in opposite direction). If response appears as in Fig. 4A, adjust A24 and A25 until curve appears as in Fig. 4B. This adjustment overcompensates to allow for channel 13 adjustment. Repeat steps 10 and 11 until centered and symmetrical response curves are obtained on channels 7 and 13.
12.	"	"	85MC (10MC Swp)	85MC	6	"	A26, A27 A28	Adjust for symmetrical response approximately center of bandpass. Adjust A26 counter clockwise until single peak appears. Adjust A27 until peak falls on 85MC marker. Adjust A28 for maximum amplitude and symmetry of single peak. Retouch SLIGHTLY if necessary A26 and A27 for symmetrical response centered about the 85MC marker.

UHF IF ALIGNMENT

Connect bias as under "Oscillator Alignment".
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Direct	UHF input jack	43.5MC (10MC Swp)	43.5MC	UHF	Vert. Amp. thru 10K to point (A). Low side to chassis.	A29	Adjust for flat response.

ALIGNMENT INSTRUCTIONS (cont)

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Remove 6DE6 (V3) from its socket.
Connect two matched 100KΩ (±1%) resistors in series from point Ⓒ to chassis. The junction of these two resistors is alignment point Ⓓ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
14.	2200Ω Carbon Resistors	High side thru 2200Ω resistor to point Ⓐ. Low side to chassis.	4.5MC (400∿ 30% Mod.)	Any non-interfering chassis.	DC probe to point Ⓒ. Common to chassis.	A30, A32	Adjust for maximum deflection.
15.	"	"	"	"	DC probe to point Ⓔ. Common to point Ⓓ.	A31	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Replace V3 in its socket.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Remove 6DE6 (V3) from its socket.
Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	2200Ω Carbon Resistor	High side thru 2200Ω resistor to point Ⓐ. Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. Amp. to point Ⓖ. Low side to chassis.	A30, A32	Disconnect stabilizing capacitor (C3). Adjust for curve of maximum amplitude and symmetry similar to Fig. 5.
15.	"	"	"	"	"	Vert. Amp. to point Ⓔ. Low side to chassis.	A31	Reconnect C3. Adjust A31 so that 4.5MC marker occurs at center of crossover lines as in Fig. 6. SLIGHTLY retouch A32 for maximum amplitude and straightness of crossover lines. Replace V3 in its socket.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
16.	2200Ω Carbon Resistor	High side thru 2200Ω resistor to point Ⓑ. Low side to chassis.	4.5MC (400∿ 30% Mod.)	Any	Positive lead thru crystal probe to pin 2 (grid) of picture tube. Common to chassis.	A33	Adjust for MINIMUM indication.

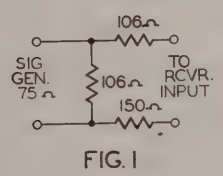


FIG. 1

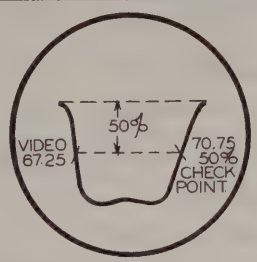


FIG. 2

FIG. 3

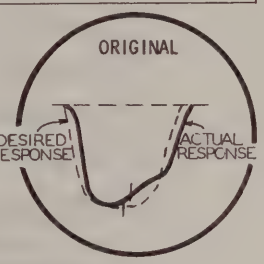


FIG. 4A

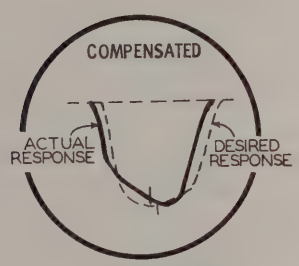


FIG. 4B

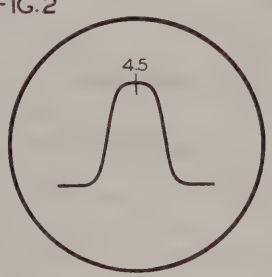


FIG. 5

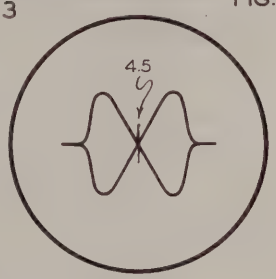
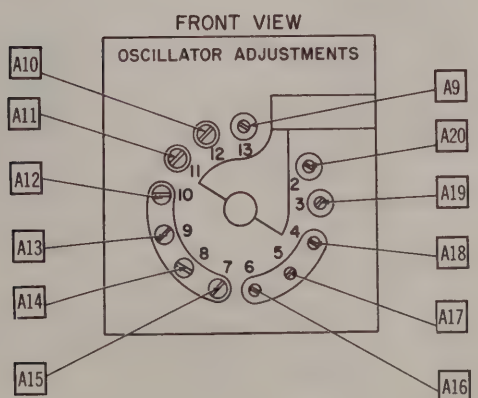


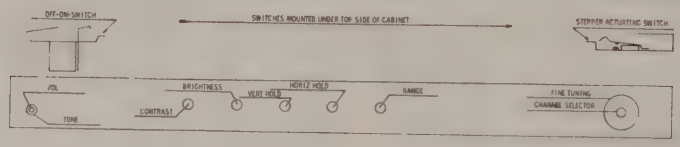
FIG. 6

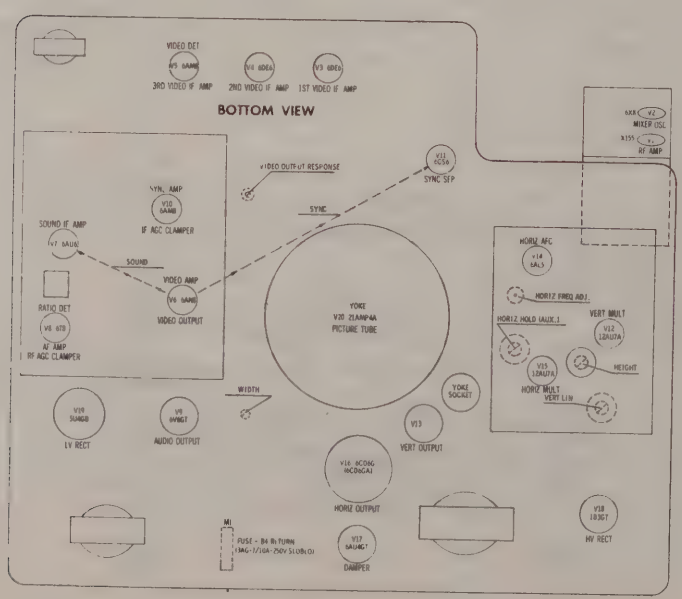


RESISTANCE MEASUREMENTS

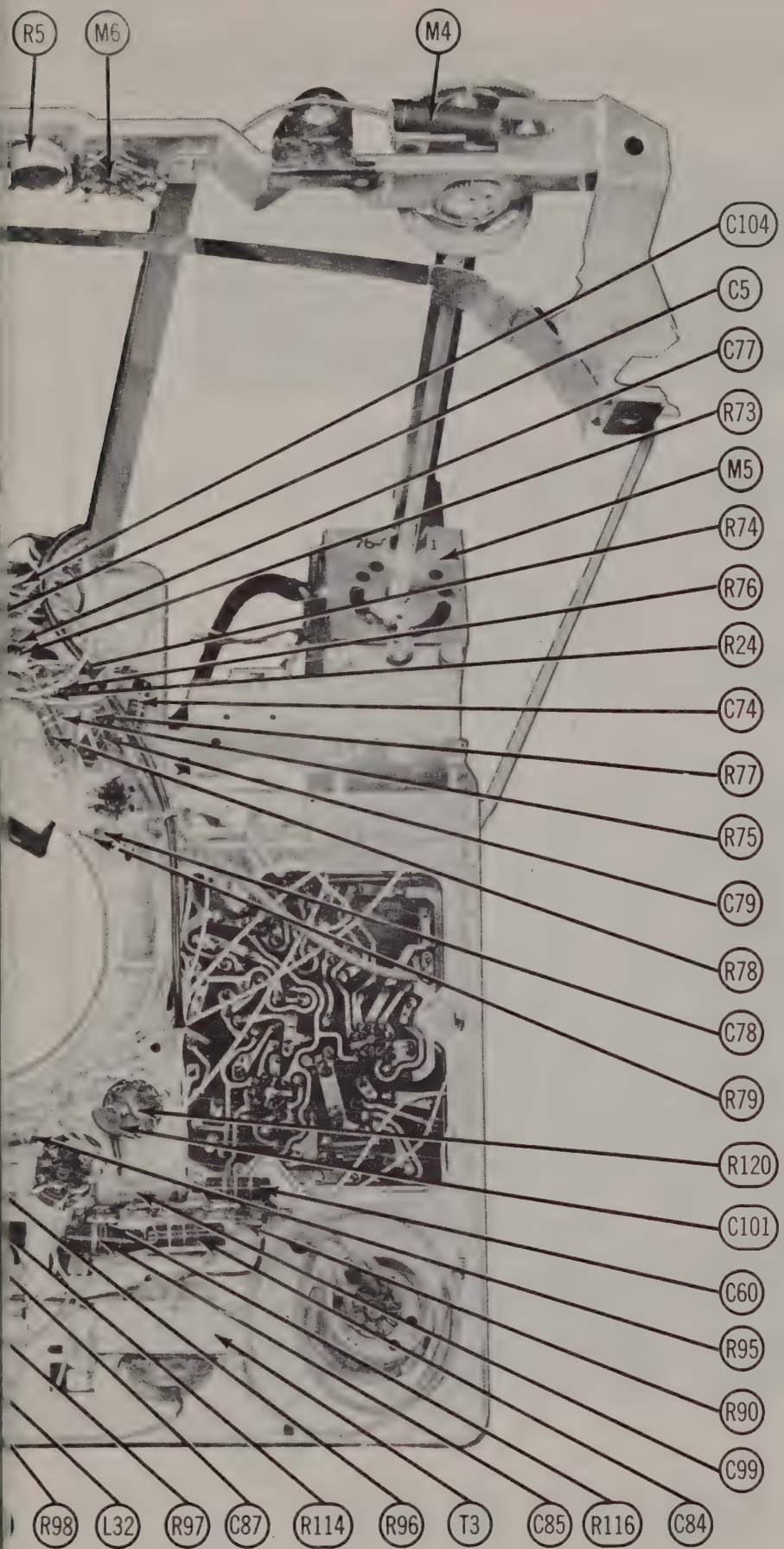
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	X155	†1800Ω	220K	INF.	.1Ω	0Ω	INF.	1.5meg	0Ω	0Ω
V2	6X8	0Ω	22K	†45K	0Ω	.1Ω	0Ω	100K	†12K	†12K
V3	6DE6	350K	47Ω	0Ω	.1Ω	†2800Ω	†2800Ω	0Ω		
V4	6DE6	350K	68Ω	0Ω	.1Ω	†2500Ω	†2500Ω	0Ω		
V5	6AM8	220Ω	.1Ω	†3200Ω	.1Ω	0Ω	†3200Ω	.1Ω	3900Ω	0Ω
V6	6AN8	†7000Ω	850K	820Ω	.1Ω	0Ω	†5500Ω	†7000Ω	1meg	●500Ω
V7	6AU6	4.2Ω	0Ω	.1Ω	0Ω	†30K	†30K	330Ω		
V8	6T8	INF.	22K	INF.	0Ω	.1Ω	1.5meg	0Ω	10meg	▲400K
V9	6V6GT	TP	.1Ω	†1100Ω	†700Ω	470K	NC	0Ω	680Ω	
V10	6AM8	270Ω	1meg	†2200Ω	0Ω	.1Ω	†10K	0Ω	350K	0Ω
V11	6CS6	0Ω	0Ω	0Ω	.1Ω	†35K	†10K	800K		
V12	12AU7A	▲220K	1meg	680Ω	0Ω	0Ω	●▲2meg	●1.8meg	680Ω	.1Ω
V13	6AV5GT	●1.8meg	0Ω	0Ω	NC	†840Ω	NC	.1Ω	†10K	
V14	6AL5	470K	1.5meg	0Ω	.1Ω	470K	0Ω	0Ω		
V15	12AU7A	†50K	●90K	1200Ω	0Ω	0Ω	†20K	5meg	1200Ω	.1Ω
V16	6CD6GA	NC	0Ω	0Ω	NC	700K	NC	.1Ω	† 9000Ω	TOP CAP ▲25Ω
V17	6AU4GT	NC	NC	120K	NC	†45Ω	NC	.1Ω	0Ω	
V18	1B3GT	PINS	1 - 8	HAVE	INF	RESISTANCE				TOP CAP ▲580Ω
V19	5U4GB	NC	12K	NC	25Ω	NC	23Ω	NC	12K	
V20	24VP4A	0Ω	470K	Pin 10 ▲50K	Pin 11 †●160K	Pin 12 .1Ω				

† MEASURED FROM PIN 2 OF V19.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
▲ MEASURED FROM PIN 3 OF V17.
TP TIE POINT.
NC NO CONNECTION.

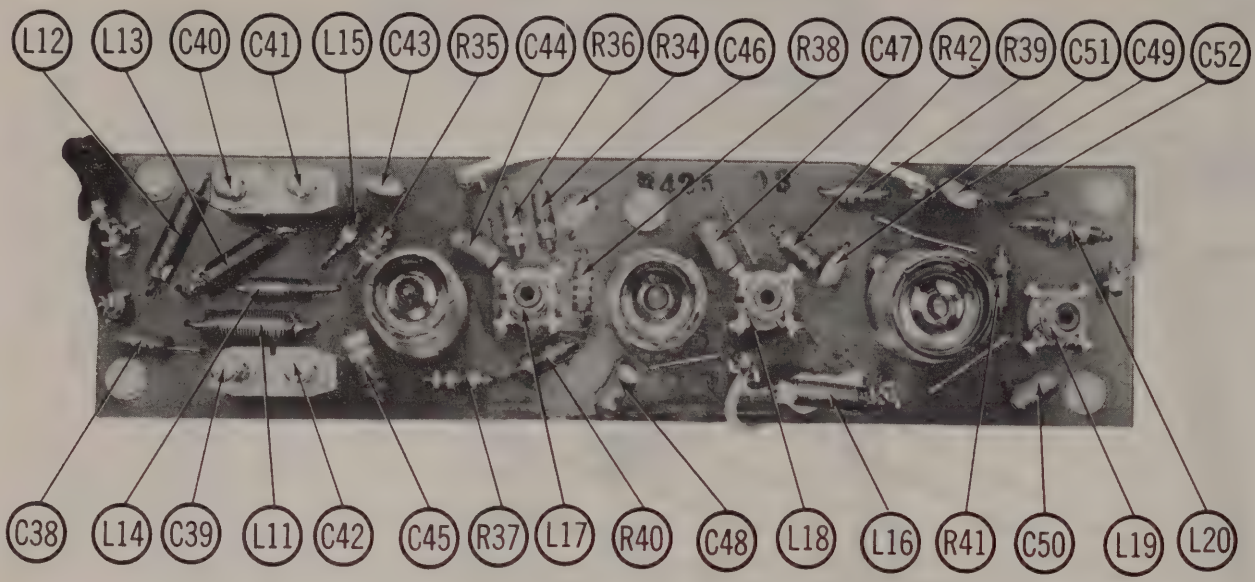




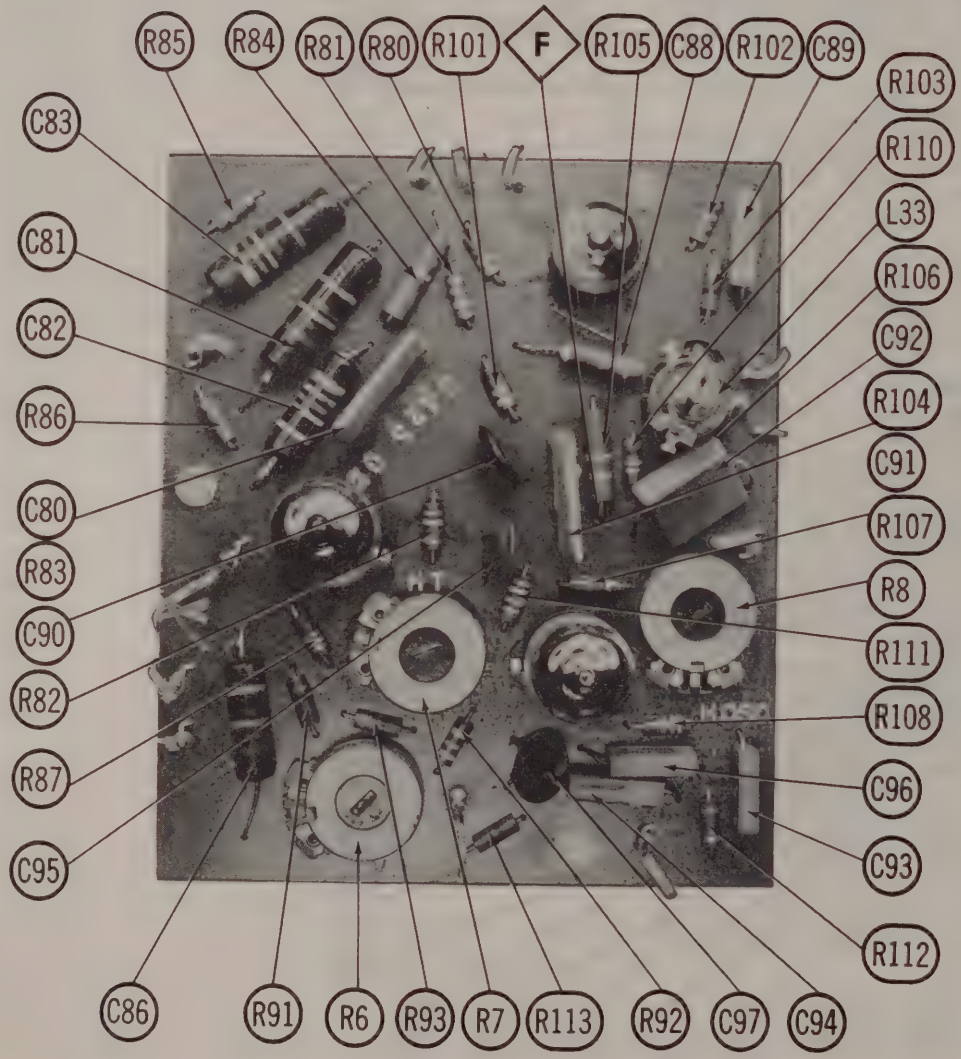
TUBE PLACEMENT CHART


R5
M6
M4
C104
C5
C77
R73
M5
R74
R76
R24
C74
R77
R75
C79
R78
C78
R79
R120
C101
C60
R95
R90
C99
R98
L32
R97
C87
R114
R96
T3
C85
R116
C84

OM VIEW

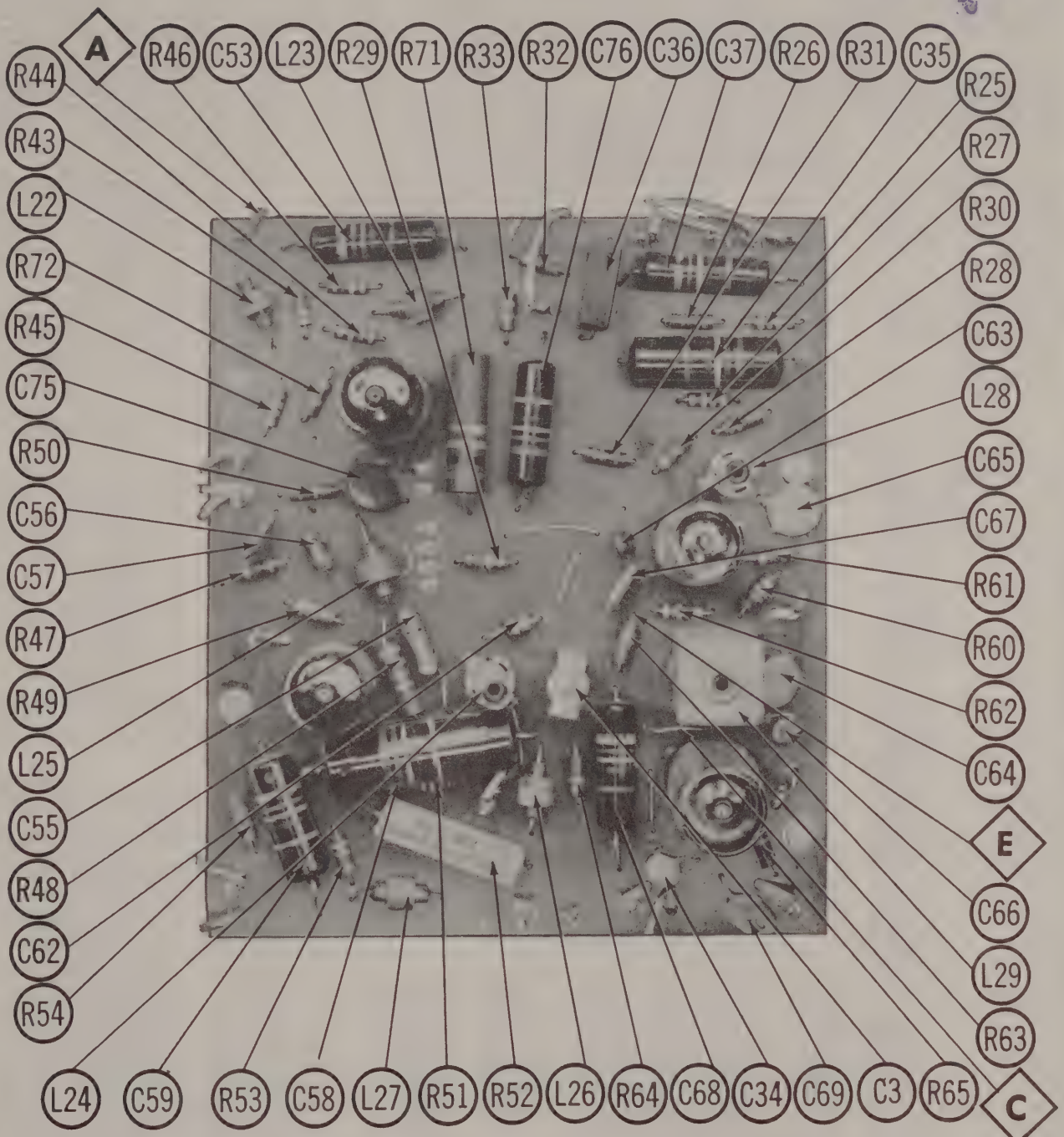


VIDEO IF SUB-CHASSIS



SWEEP CIRCUIT SUB-CHASSIS

PROPERTY OF
F. B. L. FRIENDSHIP
3934 MONROE ST.
DENVER, COLORADO



SOUND IF - VIDEO OUTPUT SUB-CHASSIS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	X155	
V2	Mixer-Oscillator	6X8	
V3	1st. Video IF Amplifier	6DE6	
V4	2nd. Video IF Amplifier	6DE6	
V5	3rd. Video IF Amplifier - Video Detector	6AM8	
V6	Video Amplifier-Video Output	6AN8	
V7	Sound IF Amplifier	6AU6	
V8	Ratio Detector-AF Amplifier-RF AGC Clamper	6T8	
V9	Audio Output	6V6GT	
V10	Sync Amplifier-IF AGC Clamper	6AM8	
V11	Sync Separator	6CS6	
V12	Vert. Mult.	12AU7A	
V13	Vert. Output	6AV5GT	
V14	Horiz. AFC	6AL5	
V15	Horiz. Mult.	12AU7A	
V16	Horiz. Output	6CD6GA	
V17	Damper	6AU4GT	Note 1
V18	HV Rectifier	1B3GT	
V19	LV Rectifier	5U4GB	

Note 1. 6AX4GT may be used in some versions.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	PHILCO PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V20	24VP4A ①	24VP4A ①		24VP4A ② 24VP4	① Aluminized ② Silver screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	40	400	30-2584-58	AFH1-52	A048	FP146	TMS-51	S-270	TVL-1725
C2A	■130	350	30-2584-49	AFH4-94-70		FP476		T-180	R2254 *
B	▲20	350				TC80		T-185	
C	10	350							
D	▲10	475							
C3	2	50	30-2589	PRS50V2	BBR2-50	TC302	TD-2-50	MT-0502	TVA-1301
C4	50	25	45-3035-2	PRS25V50	BR502	TC29	TD-50-25	FM-0250	TVA-1206
C5	10	350	30-2417-35	PRS350V10	BR1235	TC62	TD-12-350	FM-3512	TVA-1604
C6A	▲20	350	30-2584-61	AFH3-152-50	B030	FP333.6	TMD-35	D-160	R2255 *
B	■20	350			BR2025	TC52	TD20-250	FM-2520	
C	20	200							

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C7	2.7		30-1224-125							
C8	6		30-1224-9							
C9	5		30-1224-78	NP0-SI5	TCZ-4R7	Z011	NP0A-050	ZT-555	5TCCB-V47	
C10	220		62-122001001	SI220	D6-221	TP39	GP2K-221	UC-5322	5GA-T22	
C11	6		30-1224-9			Z012				
C12	1000		30-1245-6							
C13	2.7		30-1224-125							Note 1
C14	150		30-1238-9	BPD-00015	DD-151	G046	811-151	UC-5315	5GA-T15	
C15	.5-3		31-6520-3		829-3		3115-01-0R5	CT565A		
C16	1000		30-1245-6							
C17	150		30-1238-9	BPD-0015	DD-151	G046	811-151	UC-5315	5GA-T15	
C18	1.5		62-01540901I	NP0-SI15	TCZ-15	TZ11	NP0K-150		5TCC-Q15	
C19	2.2		30-1221-6	NP0-SI2.2	TCZ-2R2	TZ05	NP0A-2R2		5TCCB-V22	
C20	1.5			NP0-SI1.5	TCZ-1R5	TZ04	NP0A-1R5	ZT-5515	5TCCB-V15	
C21	56		62-056409001	NP0-SI56	TCZ-56	TZ24	NP0-337-5 60			
C22	.5-3		31-6520-3		829-3		3115-01-0R5	CT565A		
C23	1.8		30-1224-120							
C24	150		30-1238-9	BPD-00015	DD-151	G046	811-151	UC-5315	5GA-T15	
C25	150		30-1238-9	BPD-00015	DD-151	G046	811-151	UC-5315	5GA-T15	
C26	12		62-012300001							
C27	12		62-012300001							
C28	7.5		30-1224-37							
C29	10000		30-1238-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C30	680		62-168001011	SI680	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	
C31	1000		30-1245-6							
C32	680		62-168001011	SI680	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	
C33	.22	200	30-4650-49	P288N-22		CUB2P22		PT4022	2TM-P22	
C34	470		30-1238-10	BPD-00047	DD-471	K060	811-471	UC-5347	5GA-T47	
C35	.15	200		P288N-15		CUB2P15		PT4015	2TM-P15	Note 3
C36	6000	400		SI6000	D6-602	1D5D6	GP3-333-103	MC467	1FM-26	Note 2
C37	.047	200	30-4650-45	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C38	3.3		30-1224-114	NP0-SI3.3	TCZ-3R3	TZ06	NP0A-3R3	ZT-5533	5TCCB-V33	
C39	1-5		31-6520-19		829-6					
C40	.5-3		31-6520-21		829-3		3115-01-0R5	CT565A		
C41	1-7		31-6520-20		829-7					
C42	1-5		31-6520-19		829-6					
C43	1500		30-1238-15	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C44	680		62-168001011	SI680	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	
C45	470			SI470	D6-471	TP46	GP2K-471	UC-5347	5GA-T47	Note 4
C46	1500		30-1238-15	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C47	680		62-168001011	SI680	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	
C48	27		62-027409011	SI27	D6-270	TP26	GP1K-270	UC-5427	5GA-Q27	
C49	1500		30-1238-15	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C50	680		62-1680011	SI680	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	
C51	1500		30-1238-15	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C52	5		30-1224-28	NP0-DI5	DD-050	Z011	NP0A-050	ZT-555	5TCCB-V47	
C53	.047	200	30-4650-45	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C54	470		62-147001001	SI470	D6-471	TP46	GP2K-471	UC-5347	5GA-T47	
C55	68		62-068409011	NP0-SI68	D6-680	TZ26	801-680		5TCC-Q68	
C56	12		62-012409011	1469-000012	TCZ-12	TZ10	NP0K-120		MS-412	
C57	10000		30-1238-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C58	.22	400	30-4650-49	P488N-22		CUB4P22		PT4022	4TM-P22	
C59	.047	400	30-4650-45	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C60	.022	600	30-4650-60	BPD-02	DF-203	CUB6S22	817-02	PT6122	6TM-S22	
C61	.047	400	30-4650-45	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C62	7.5		30-1221-24							
C63	8		30-1251-10	NP0-DI8.2		Z015	NP0A-8R2			
C64	2000		30-1238-12	BPD-002	DD-202	K072	801-002	DC-522	5HK-D2	
C65	5000		30-1238-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C66	330		30-1238-21	BPD-00033	DD-331	TP43	811-331	UC-5333	5GA-T33	
C67	1500		30-1238	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C68	.047	200	30-4650-45	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C69	10000		30-1238-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C70	5000		30-1238-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C71	.047	200	30-4650-45	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C72	.0033	600	30-4650-55	BPD-0033	D6-332	CUB6D33	GP2-333-332	PT6233	6TM-D33	Note 2
C73	.015	1000	30-4650-93	P1088N-015	DD16-153	CUB16S15		PT16115	10TM-S15	

PARTS LIST AND CAPACI

ITEM No.	RATING		PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.
	CAP.	VOLT			
C74	.047	200	30-4650-45	BPD-05	DF-503
C75	10000		30-1238-2	BPD-01	DD-103
C76	.022	400	30-4650-45	BPD-02	DF-203
C77	680		62-168001011	SI680	D6-681
C78	100		62-1100090001	SI100	D6-101
C79	.1	200	30-4650-47	P288N-1	DF-104
C80A	4000				
B	10000		†30-6008-1	†PA-367	
C	10000				
C81	.01	600	30-4650-58	BPD-01	D6-103
C82	.0033	400	30-4650-55	1464-0033	
C83	.047	200	30-4650-45	BPD-05	DF-503
C84	.1	400		P488N-1	DF-104
C85	.047	600	30-4650-62	BPD-05	DF-503
C86	.01	400	30-4650-51	BPD-01	D6-103
C87	.047	400	30-4650-62	BPD-05	DF-503
C88	68		62-068409011	NP0-SI68	D6-680
C89	120	500	60-10125237	1469-00012	TCZ-120
C90	1000		30-1238-3	BPD-001	DD-102
C91A	1000		♦30-6009-2	♦PA-366-3	
B	14000				
C92	2200	500	60-20225434	1464-0022	
C93	82	500	60-00825437	1469-000082	TCZ-82
C94	390	500	60-10395417		D6-391
C95	1000		30-1238-3	BPD-001	DD-102
C96	390	500	60-10395417		D6-391
C97	1000		30-1238-3	BPD-001	DD-102
C98	.047	400	30-4650-62	BPD-05	DF-503
C99	.033	600	30-4650-61	P688N-033	
C100	.1	400	30-4650-47	P488N-1	DF-104
C101	82	4000	30-1246-4		
C102	10000	600	30-4650-58	BPD-01	DD-103
C103	10000	600	30-4650-58	BPD-01	DD-103
C104	10000		30-1238-2	BPD-01	DD-103

† Items C80A, C80B, C80C, R83A, R83B, R83C and R83Dare
♦ Items C91A, C91B, R104A and R104B are combined in one unit
Note 1. Tuner stamped Run 4 uses 3.3MMF unit in this applica
application.
Note 2. Early versions use a .01MFD unit in this application.
Note 3. Some versions use a .1MFD unit (part #30-4650-47) in
Note 4. Not used in some versions.
Note 5. Early versions use 330MMF unit (part #62-13300101I)

CONTR

ITEM No.	RATING		REPLACEMENT		
	RESISTANCE	WATTS	PHILCO PART No.	CENTRALAB PART No.	CLAROSTA PART No.
R1A	5Meg	½	33-5573-13		
B	250K	½			
R2A	1500Ω	½	33-5572-31	AB-6	A47-1500-S
B	Shaft		Not Req.	AK-3	FS-3
R3A	100K	½	33-5572-21	AB-40	A47-100K-S
B	Shaft		Not Req.	AK-3	FS-3
R4A	3Meg	½	33-5572-30	AB-84	A47-3Meg-
B	Shaft		Not Req.	AK-3	FS-3
R5A	50K	½	33-5572-34	AB-31	A47-50K-S
B	Shaft		Not Req.	AK-3	FS-3
R6	2.5Meg	½	33-5572-23		
R7	2.5Meg	½	33-5572-23		
R8	250K	½	33-5572-24		
R9	12.5K	2	33-5574	VK-137	

Note 1. Some versions will use an alternate control Part No.
Note 2. Some versions will use an alternate control Part No.
Note 3. Some versions will use an alternate control Part No.

RESISTO

All wattages 1/2 watt, or less,

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	PHILCO PART No.	IRC PART No.	
R10	22K		66-3228340	BTS-22K	
R11	470K 5%		66-4478240	BTS-470K 5%	
R12	470K 5%		66-4478240	BTS-470K 5%	
R13	150K		66-4158340	BTS-150K	
R14	1000Ω		66-2108340	BTS-1000	
R15	330Ω		66-1338340	BTS-330	
R16	680Ω		66-1688340	BTS-680	
R17	100K		66-4108340	BTS-100K	
R18	22K		66-3228340	BTS-22K	
R19	33K		66-3338340	BTS-33K	
R20	12K	4	33-1363-1		
R21	12K		66-3128340	BTS-12K	
R22	820Ω	1	66-1824340	BTA-820	
R23	1000Ω		66-2108340	BTS-1000	
R24	220K		66-4228340	BTS-220K	
R25	330K		66-4338340	BTS-330K	
R26	8.2Meg		66-5828340	BTS-8.2Meg	
R27	470K		66-4478340	BTS-470K	
R28	22K		66-3228340	BTS-22K	
R29	510K 5%		66-4518240	BTS-510K 5%	
R30	12Meg 5%		66-6128240	BTS-12Meg 5%	
R31	1Meg 5%		66-5108240	BTS-1Meg 5%	
R32	1Meg		66-5108340	BTS-1Meg	
R33	680K		66-4688340	BTS-680K	
R34	1000Ω		66-2108340	BTS-1000	
R35	47K		66-3478340		
R36	330Ω		66-1338340	BTS-330	
R37	47Ω		66-0478340	BTS-47	
R38	18K		66-3188340		
R39	330Ω		66-1338340	BTS-330	
R40	68Ω		66-0688340	BTS-68	
R41	1000Ω		66-2108340	BTS-1000	
R42	220Ω		66-1228340	BTS-220	
R43	3900Ω		66-2398340	BTS-3900	
R44	470K		66-4478340	BTS-470K	
R45	27K		66-3278340	BTS-27K	
R46	3900Ω		66-2398340	BTS-3900	
R47	1Meg		66-5108340	BTS-1Meg	
R48	3300Ω 5%	1	66-2334240	BTA-3300 5%	
R49	47K		66-3478340	BTS-47K	
R50	5600Ω		66-2568340	BTS-5600	
R51	680K		66-4688340	BTS-680K	

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amplifier	X155	
V2	Mixer-Oscillator	6X8	
V3	1st. Video IF Amplifier	6DK6	
V4	2nd. Video IF Amplifier	6DK6	
V5	3rd. Video IF Amplifier - Video Detector	6AM8	
V6	Video Amplifier - Video Output	6AN8	
V7	Sound IF Amplifier	6AU6	
V8	Ratio Detector-AF Amplifier-RF AGC Clamper	6T8	
V9	Audio Output	6V6GT	

ITEM No	USE	TYPE	NOTES
V10	Sync Amplifier-IF AGC Clamper	6AM8	
V11	Sync Separator	6CB6	
V12	Vert. Mult.	12AU7A	
V13	Vert. Output	6AV6GT	
V14	Horiz. AFC	6AL5	
V15	Horiz. Mult.	12AU7A	
V16	Horiz. Output	6CD6GA	
V17	Damper	6AU4GT	Note 1
V18	HV Rectifier	1B3GT	
V19	LV Rectifier	5U4GB	

Note 1 6AX4GT may be used in some versions.

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	PHILCO CRT No	CBS CRT No	GENERAL ELECTRIC CRT No	SYLVANIA CRT No	
V20	24VP4A ①	24VP4A ①		24VP4A ① 24VP4 ②	① Aluminized ② Silver screen "85"

ELECTROLYTIC CAPACITORS

ITEM No	RATING CAP	RATING VOLT	PHILCO PART No	AEROVOX PART No.	CORNELL DUBILIER PART No.	PYRAMID PART No	SANGAMO PART No	SPRAGUE PART No	NOTES
C1	40	400	30-3584-88	AFH-52	A048	FP146	TMB-51	S-370	TYL-1725
C2A	▲30	350	30-3584-49	AFH4-94-70		FP476		T-180	BR354 *
B	▲30	350				FC80		T-185	
C	10	350							
D	▲10	475							
C3	50	50	30-3589	PRS50V2	BBR3-50	TC302	TD-2-50	MT-0502	TVA-1301
C4	50	25	45-3035-2	PRS25V50	BR502	TC29	TD-50-35	FM-0250	TVA-1206
C5	10	350	30-2417-35	PRS350V10	BR1235	TC92	TD-12-350	FM-3510	TVA-1504
C6A	▲20	350	30-3584-81	AFH3-152-50*	B030	FP333,6	TMD-35	D-160	BR365 *
B	▲20	200			BR3035	TC53	TD80-350	FM-3520	
C	▲20	200							

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING CAP	RATING VOLT	PHILCO PART No	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	IRC PART No.	MALLORY PART No	SPRAGUE PART No	NOTES
C7	2.7		30-1224-125							
C8	6		30-1224-2							
C9	8		30-1224-78	NPO-SIS	TCS-4R7	Z011	NPOA-050	Z7-555	5TCCB-V47	
C10	220		62-122001001	SIZ30	D6-521	TP39	GP2K-321	UC-5322	5GA-T22	
C11	6		30-1224-9			Z013				Note 1
C12	1000		30-1245-5							
C13	2.7		30-1224-125							
C14	150		30-1238-5	BPD-00015	DD-151	G046	81J-151	UC-5315	5GA-T15	
C15	.5-3		31-6520-3		829-3		31J5-01-0R5	CT565A		
C16	1000		30-1245-6							
C17	150		30-1238-9	BPD-0015	DD-151	G046	81J-151	UC-5315	5GA-T15	
C18	1.5		62-015400011	NP0-SI15	TC2-15	TZ11	NP0K-150		5TCC-Q15	
C19	3.3		30-1231-6	NP0-SI3.3	TC2-3R3	TZ05	NP0A-3R3		5TCCB-V33	
C20	1.5			NP0-SI1.5	TC2-1R5	TZ04	NP0A-1R5		5TCCB-V15	
C21	56		62-056409001	NP0-SI56	TC2-56	TZ24	NP0-337-5-50			
C22	.5-3		31-6520-3		829-3		31J5-01-0R5	CT565A		
C23	1.5		30-1224-120							
C24	150		30-1238-9	BPD-00015	DD-151	G046	81J-151	UC-5315	5GA-T15	
C25	150		30-1238-9	BPD-0015	DD-151	G046	81J-151	UC-5315	5GA-T15	
C26	L2		62-012300001							
C27	L8		62-013300001							
C28	3.3		30-1224-37							
C29	10000		30-1238-3	BPD-01	DD-103	K082	81J-01	DC-511	5HK-61	
C30	680		62-189001011	SIS80	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	
C31	680		30-1245-8							
C32	680		62-189001011	SIS80	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	
C33	.22	300	30-4650-49	P488N-22		CUBP223		PT4022	2TM-P22	
C34	470	300	30-1238-10	BPD-00047	DD-471	G050	81J-471	PT4047	5GA-T47	
C35	.15	300		P488N-15		CUBP15		PT4015	2TM-P15	Note 3
C36	6000	400		SI6000	D6-602	LDSD6	GP3-333-103	MC457	1FM-26	Note 2
C37	.047	200	30-4650-45	BPD-05	DF-503	CUBS247		PT4147	2TM-S47	
C38	3.3		30-1224-114	NP0-SI3.3	TC2-3R3	TZ06	NP0A-3R3	Z7-5533	5TCCB-V33	
C39	1-3		31-6520-10		829-5					
C40	.5-3		31-6520-21		829-3		31J5-01-0R5	CT565A		
C41	1-7		31-6520-20		829-7					
C42	1-5		31-6520-19		829-5					
C43	1500		30-1238-15	BPD-0015	DD-152	K071	801-0015	DC-5315	5HK-D15	
C44	680		62-189001011	SIS80	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	
C45	470			SI470	D6-471	TP46	GP3K-471	UC-5347	5GA-T47	Note 4
C46	1500		30-1238-15	BPD-0015	DD-152	K071	801-0015	DC-5315	5HK-D15	
C47	680		62-189001011	SIS80	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	
C48	27		62-027409011	SI27	D6-270	TP25	GP2K-270	UC-5427	5GA-Q27	
C49	1500		30-1238-15	BPD-0015	DD-152	K071	801-0015	DC-5315	5HK-D15	
C50	680		62-189001011	SIS80	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	
C51	1500		30-1238-15	BPD-0015	DD-152	K071	801-0015	DC-5315	5HK-D15	
C52	33		30-1224-15	NP0-050	TC2-330	Z01	NP0A-050	Z7-555	5TCCB-V47	
C53	.047	200	30-4650-45	BPD-05	DF-503	CUBZ547		PT4147	2TM-S47	
C54	470		62-147001001	SI470	D6-471	TP46	GP2K-471	UC-5347	5GA-T47	
C55	68		62-006400011	SI68	D6-680	TZ26	601-680		5TCC-Q68	
C56	L2		62-012400011	1488-00002	TC2-12	TZ30	NP0K-120		MS-412	
C57	10000		30-1238-3	BPD-01	DD-103	K082	81J-01	DC-511	5HK-61	
C58	22	400	30-4650-49	P488N-22		CUBP222		PT4022	4TM-P22	
C59	.047	400	30-4650-45	BPD-05	DF-503	CUBS547		PT4147	4TM-S47	
C60	.022	400	30-4650-49	BPD-02	DF-303	CUBS322	81T-02	PT4122	4TM-S22	
C61	.047	400	30-4650-45	BPD-05	DF-503	CUBS647		PT4147	4TM-S47	
C62	7.5		30-1231-34							
C63	8		30-1251-10	NP0-D18.2		Z015	NP0A-3R2			
C64	2000		30-1238-12	BPD-002	DD-202	K072	801-002	DC-522	5HK-D2	
C65	5000		30-1238-1	BPD-005	DD-502	K080	81J-005	DC-535	5HK-D5	
C66	330		30-1238-21	BPD-00033	DD-331	TP43	81J-331	UC-5333	5GA-T33	
C67	1500		30-1238	BPD-0015	DD-152	K071	801-0015	DC-5315	5HK-D15	
C68	.047	200	30-4650-45	BPD-05	DF-503	CUBZ547		PT4147	2TM-S47	
C69	10000		30-1238-2	BPD-01	DD-103	K082	81J-01	DC-511	5HK-61	
C70	5000		30-1238-1	BPD-005	DD-502	K080	81J-005	DC-535	5HK-D5	
C71	.047	200	30-4650-45	BPD-05	DF-503	CUBZ547		PT4147	2TM-S47	
C72A	.0033	600	30-4650-55	BPD-0033	DF-332	CUBS233	GP3-332-323	PT5233	6TM-S33	Note 3
C73	.018	1000	30-4650-59	P10B01-015	DD18-153	CUBR815		PT6B18	10TM-B15	

PARTS LIST AND DESCRIPTIONS

CAPACITORS (cont)

ITEM No	RATING CAP	RATING VOLT	PHILCO PART No	AEROVOX PART No.	CENTRALAB PART No	CORNELL-DUBILIER PART No	IRC PART No	MALLORY PART No	SPRAGUE PART No	NOTES
C74	.047	300	30-4650-45	BPD-05	DF-503	CUBZ547		PT4147	2TM-S47	
C75	10000		30-1238-3	BPD-01	DD-103	K082	81J-01	DC-511	5HK-61	
C76	.022	400	30-4650-49	BPD-02	DF-303	CUBS322	81T-02	PT4122	4TM-S22	
C77	680		62-189001011	SI680	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	Note 5
C78	100		62-110000001	SI100	D6-101	TP34	GP1K-101	UC-531	5GA-T1	
C79	.1	200	30-4650-47	P288N-1		DF-104	CUBZP1	PT401	2TM-P1	
C80A	4000		130-8008-1	†PA-387						
B	10000									
C	10000									
C81	.01	600	30-4650-58	BPD-01	DS-103	CUBS81	GP3-333-103	PT611	6TM-S1	
C82	.0033	400	30-4650-55	1484-0033		CUBS233		MS-333		
C83	.047	200	30-4650-45	BPD-05	DF-503	CUBZ547		PT4147	2TM-S47	
C84	.1			P488N-1		DF-104		PT401	4TM-P1	
C85	.047	600	30-4650-62	BPD-05	DF-503	CUBS647		PT4147	6TM-S47	
C86	.01	400	30-4650-51	BPD-01	DS-103	CUBS81	GP3-333-103	PT411	4TM-S1	
C87	.047	400	30-4650-62	BPD-05	DF-503	CUBS547		PT4147	4TM-S47	
C88	68		62-068409011	NP0-SI68	D6-680	TZ36	NP0-337-560		5TCC-Q68	
C89	120	500	30-1035237	1469-00012	TC2-120	2383713	81J-121		MS-513	
C90	1000		30-1238-3	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C91A	1000		▲30-8009-3	▲PA-386-3						
B	14000									
C92	3300	500	30-3225434	1464-0022		1RSD22			MS-322	
C93	82	500	30-3083437	1468-00082	TC2-82	2285Q82	80J-820		MS-483	
C94	390	500	30-1035417		D6-391	5R5739	81J-391		MS-339	
C95	1000		30-1238-3	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C96	330	500	30-1035417		D6-331	5R5729	81J-331		MS-339	
C97	1000		30-1238-3	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C98	.047	400	30-4650-62	BPD-05	DF-503	CUBS647		PT4147	6TM-S47	
C99	.033	600	30-4650-61	P488N-033		CUBS633		PT6133	6TM-S33	
C100	.1	400	30-4650-47	P488N-1	DF-104	CUBZP41		PT401	4TM-P1	
C101	82	4000	30-2346-4							
C102	10000	600	30-4650-58	BPD-01	DD-103	CUBS81	81J-01	PT611	6TM-S1	
C103	10000	600	30-4650-58	BPD-01	DD-103	CUBS81	81J-01	PT611	6TM-S1	
C104	10000		30-1238-2	BPD-01	DD-103	K082	81J-01	DC-511	5HK-61	Note 4

† Items C80A, C80B, C80C, R83A, R83B, R83C and R83Dare combined in one unit.
▲ Items C94A, C94B, R104A and R104B are combined in one unit.
Note 1. Tuner stamped Run 4 uses 3.9MMF unit in this application. Tuner stamped Run 3 uses 3.9MMF unit in this application.
Note 2. Early versions use a .01MFD unit in this application.
Note 3. Some versions use a .1MFD unit (part #30-4650-47) in this application.
Note 4. Not used in some versions.
Note 5. Early versions use 330MMF unit (part #62-133001001) in this application.

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	PHILCO PART No	CENTRALAB PART No	CLAROSTAT PART No	IRC PART No	MALLORY PART No	INSTALLATION NOTES
R1A	5Meg	½	33-5573-13				UP10BL	Tone (Panel)
B	250K	½					UR264-T7S3	Volume tapped at 100K (Rear)
R2A	1500Ω	½	33-5572-31	AB-6	A47-1500-S	Q11-109	TA152L	Contrast-Note 1
B	Shaft		Not Req.	AK-3	FS-3	Not Req.	TA3L	Attach to R2A.
R3A	100K	½	33-5572-21	AB-60	A47-100K-S	Q11-J36	TA151L	Brightness
B	Shaft		Not Req.	AK-3	FS-3	Not Req.	Not Req.	Attach to R3A.
R4A	3Meg	½	33-5572-30	AB-34	A47-3Meg-S	Q11-140	TA36L	Vert. Hold-Note 2
B	Shaft		Not Req.	AK-3	FS-3	Not Req.	Not Req.	Attach to R4A.
R5A	50K	½	33-5572-34	AB-31	A47-50K-S	Q11-123	TA54L	Horiz Hold-Note 3
B	Shaft		Not Req.	AK-3	FS-3	Not Req.	Not Req.	Attach to R5A.
R6	2.5Meg	2	33-5572-23					Vert. Linearity
R7	1.5Meg	2	33-5572-22					Height
R8	250K	1	33-5572-24					Horiz. Oscillator
R9	12.5K	2	33-5574	VK-137				Width - Wire Wound

Note 1. Some versions will use an alternate control Part No. 33-5572-29.
Note 2. Some versions will use an alternate control Part No. 33-5572-20.
Note 3. Some versions will use an alternate control Part No. 33-5572-19.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	PHILCO PART No.	IRC PART No.	NOTES
R10	22K		66-5228340	BTS-22K	
R11	470K	5%	66-4478240	BTS-470K 5%	
R12	470K	5%	66-4478240	BTS-470K 5%	
R13	150K		66-5158340	BTS-150K	
R14	100Ω		66-5108340	BTS-100	
R15	330Ω		66-5338340	BTS-330	
R16	330Ω		66-5338340	BTS-330	
R17	100K		66-5108340	BTS-100K	
R18	22K		66-5228340	BTS-22K	
R19	33K		66-5338340	BTS-33K	
R20	12K	4	33-1363-1		
R21	12K	2	66-5128340	BTS-12K	
R22	680Ω	1	66-5684340	BTA-680	
R23	1000Ω		66-5108340	BTS-1000	
R24	330K		66-4338340	BTS-330K	
R25	330K		66-4338340	BTS-330K	
R26	8.2Meg		66-5828340	BTS-8.2Meg	
R27	470K		66-4478340	BTS-470K	
R28	22K		66-5228340	BTS-22K	
R29	470K	5%	66-4518240	BTS-470K 5%	
R30	12Meg	5%	66-6128240	BTS-12Meg 5%	
R31	1Meg	5%	66-5108240	BTS-1Meg 5%	
R32	1Meg		66-5108340	BTS-1Meg	
R33	680K		66-4688340	BTS-680K	
R34	100Ω		66-5108340	BTS-1000	
R35	47K		66-5478340		
R36	330		66-1338340	BTS-330	
R37	470		66-0478340	BTS-47	
R38	18K		66-5188340		
R39	330Ω		66-1338340	BTS-330	
R40	68Ω		66-0688340	BTS-68	
R41	100Ω		66-5108340	BTS-1000	
R42	220Ω		66-5228340	BTS-220	
R43	3900Ω		66-5398340	BTS-3900	
R44	470K		66-4478340	BTS-470K	
R45	27K		66-5278340	BTS-27K	
R46	3900Ω		66-5398340	BTS-3900	
R47	1Meg		66-5108340	BTS-1Meg	
R48	3300Ω	5% 1	66-2334240	BTA-3300 5%	
R49	47K		66-4478340	BTS-47K	
R50	3300Ω		66-3338340	BTS-3300	
R51	680K		66-4688340	BTS-680K	

ITEM No.	RATING OHMS	RATING WATT	PHILCO PART No.	IRC PART No.	NOTES
R52	7000Ω	7	33-1335-126		
R53	470Ω		66-2478340	BTS-4700	
R54	470K		66-4478340	BTS-470K	
R55	27K		66-5278340	BTS-27K	Note 1
R56	150K		66-5158340	BTS-150K	Note 2
R57	2200Ω		66-5228340	BTS-2200	
R58	150Ω		66-1158340	BTS-150	
R59	680Ω		66-1828340	BTS-820	Note 3
R60	27K		66-5278340	BTS-27K	
R61	330Ω		66-5338340	BTS-330	
R62	390Ω		66-1398340	BTS-390	
R63	22K		66-5228340	BTS-22K	
R64	22K		66-5228340	BTS-22K	
R65	10Meg		66-8108340	BTS-10Meg	
R66	330K		66-4338340	BTS-330K	
R67	6800Ω		66-3688340	BTS-6800	
R68	470K		66-4478340	BTS-470K	
R69	680Ω	2	66-1685340	BTS-6800	
R70	680Ω	1	66-1684340	BTA-680	
R71	10K	2	66-5108340	BTS-10K	
R72	270Ω		66-1278340	BTS-270	
R73	330K		66-4338340	BTS-330K	Note 4
R74	1.5Meg		66-5158340	BTS-1.5Meg	
R75	10K		66-5108340	BTS-10K	
R76	330K		66-4338340	BTS-330K	
R77	390K		66-4398340	BTS-390K	
R78	12K	2	66-3123340	BTS-12K	
R79	8200Ω		66-2828340	BTS-8200	
R80	330K		66-4338340	BTS-330K	
R81	27K		66-5278340	BTS-27K	
R82	3900Ω		66-2398340	BTS-3900	
R83A	10K			BTS-10K	
B	10K		130-8008-1	BTS-10K	
C	10K			BTS-10K	
D	1Meg			BTS-1Meg	
R84	220K	1	66-4224340	BTA-220K	
R85	680Ω	5%	66-1688240	BTS-680 5%	
R86	1.5Meg	5%	66-5158240	BTS-1.5Meg	
R87	560K		66-4568340	BTS-560K	
R88	750K		33-1343-7		Note 5
R89	220KΩ		66-4228340	BTS-220K	

RESISTORS (cont)

ITEM No	RATING OHMS	RATING WATT	REPLACEMENT DATA PHILCO PART No	REPLACEMENT DATA IRC PART No	NOTES
R90	680Ω		66-1688340	BTS-680	
R91	1200Ω		66-5128340	BTS-1Meg	
R92	470K		66-4478340	BTS-470K	
R93	1Meg		66-5108340	BTS-150K	
R94	330Ω	1	66-1334340	BTA-330	
R95	22K	1	66-5224340	BTA-22K	
R96	22K	1	66-5224340	BTA-22K	
R97	33K	2	66-5238340	BTS-33K	
R98	18K	2	66-5188340	BTS-18K	
R99	1000Ω				
R100	1000Ω				
R101	470Ω		66-3478340	BTS-4700	
R102	470K		66-4478340		
R103	1Meg		66-5108340		
R104A	4.7Meg		▲ 30-8008-2		
B	220K				
R105	15K	1	66-3154340		
R106	68K	1	66-4684340		
R107	1200Ω		66-3128340		
R108	56K		66-5568340		
R109	330Ω		66-3338340		Note 6
R110	10K		66-5108340		
R111	39K		66-5398340		
R112	8200Ω		66-2828340		
R113	1Meg		66-5108340		
R114	820Ω		66-2828340		
R115	6500Ω	†	33-1335-125		
R116	68K	1	66-4684340	BTA-68K	
R117	27K	3	66-5278340	BTB-27K	
R118	27K	2	66-5278340	BTB-27K	
R119	180K		66-4188340	BTB-180K	
R120	12K		66-3128340		
R121	2200Ω	†	33-1335-97	1 3 4A-2250	
R122	470K		66-4478340	BTB-470K	Note 7

† Items R83A, R83B, R83C, R83D, C80A, C80B, C80C are combined in one unit.
▲ Items R104A, R104B, C94A, C94B are combined in one unit
Note 1. Some versions use a 22KΩ resistor in this application (part #66-3228340).
Note 2. Not used in chassis marked Run 7 or higher.
Note 3. In chassis stamped below Run 5, a 1000Ω resistor is used in this application (part #66-3108340).
Note 4. In chassis stamped below Run 5, a 150K resistor is used in this application (part #66-4154340).
Note 5. Special "Thermistor" type
Note 6. Not used in some versions, also some versions use an 82K in this application (part #66-3828340).
Note 7 Some versions use a 100K resistor in this application (part #66-4108340).

TRANSFORMER (POWER)

ITEM No.	RATING PRI	RATING SEC 1	RATING SEC 2	RATING SEC 3	REPLACEMENT DATA PHILCO PART No	Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No
T1	117VAC	550VCT	5VAC	12 6VCT	32-8732					
	▲1.9A	▲.300A	▲ 2A	▲5 6A *						

* 6.4A with 12V tuner selector motor operating.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA PHILCO PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Stancor PART No.	Thordarson PART No	Triad PART No
T2	Horiz. Output Trans.	32-8695-1 / 32-8695 ①	P3419 ②	HVO-38* ②	235T1 ②	X094 ②	A-8253 * / ②	FLY-16 * ②
T3	Vert. Output Trans.	21900 ③	④ A-2822 ③			V314 ②	A-8147 ②	25B71 ③
T4A	Yoke (90°) Horiz. (32MM)	32-8837 ⑤ / 32-8689-1 ⑤	21900 ③					Y-15 ④ ⑦ ②
B	Vert. (46MM)							

① Alternate Philco part number.
② Drill new mounting hole(s).
③ Connect as auto transformer.
④ Use 8 to 1 turns ratio.
⑤ Includes resistors R99 and R100.
⑥ Use original core clamp.
⑦ Use original yoke damping network if necessary.
⑧ Connect horizontal damping capacitor across terminals #3 and #7. Then connect horizontal yoke terminal #3 to yoke plug pin #5. Horiz. yoke terminal #2 or #7 to yoke plug pin #3. Horiz. yoke terminal #1 to yoke plug pin #8.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL (CONNECTION)	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
4	9	9	9	9	8	9	9
3	7	7	7	7	1	7	7
2	NC See Note ②	NC See Note ②	NC See Note ②	NC See Note ②	NC See Note ②	NC See Note ②	NC See Note ②
1	1	1	1	1	4	1	1
Special Note:	③	③	③	①	③	③	③

① If necessary to reduce yoke "ringing", connect 1000Ω ▲ 1W in series with capacitor C101.

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE PRI	IMPEDANCE SEC	PHILCO PART No	Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No	NOTES
T5	4.9K	3-4Ω	32-8883-1						

SPEAKER

ITEM No.	RATINGS SIZE	FIELD	V C	IMP	PHILCO PART No	QUAM PART No	RCA TYPE No	NOTES
SP1	6"	PM	6-8		36-1653-5	6A12E		
SP2	8"	PM	6-8		36-1651-18	8A12E	20R54	

COILS (RF-IF)

ITEM No.	USE	DC RES PRI	DC RES SEC.	PHILCO PART No	MEISSNER PART No	QUAM PART No	MILLER PART No	NOTES
L1A	Ant.Matching Trans.	.6Ω	.6Ω					
B	Ant. Matching Trans.	.6Ω	.6Ω					
C	IF Trap	0Ω						Complete assy. part #78-9925
L2	Ant. Coils	0Ω		32R-0048				
L3	Fil. Choke	0Ω		32-4623-96				
L4	Fil. Choke	0Ω		32-4623-79				
L5	Neut. Coil	0Ω		32-4652-20				
L6	RF Coils	0Ω		32R-0044				
L7	Mixer Grid	0Ω						
	Coils	0Ω		32R-0045				
L8	Osc. Coils	0Ω		32R-0047				
L9	RF Choke	0Ω		32-4652-19				

PHILCO MODELS 24D6126L, M, 24D6320C, M (Ch. TV-444)

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L10	Conv. Plate	.1Ω		32-4629-2				Tapped
L11	47.25MC Trap	.1Ω		32-4645-3	19-1002		4606	2.44 Microhenries
L12	47.25MC Trap	.3Ω		32-4645-1				2.7 Microhenries
L13	41.25MC Trap	0Ω		32-4645-4	19-1000		4602	1.16 Microhenries
L14	1st. Video IF	.4Ω		32-4645	19-1003		4608	3.7 Microhenries
L15	RF Coil	.1Ω		32-4645-2				1.85 Microhenries
L16	Fil. Choke	.1Ω		32-4112-49				3 Microhenries
L17	2nd. Video IF	.1Ω	.1Ω	32-4644				
L18	3rd. Video IF	.1Ω	.1Ω	32-4644-1				
L19	4th. Video IF	.1Ω	.1Ω	32-4644-2				
L20	Series Peaking Coil	2.3Ω		32-4674	19-6022		6152	22 Microhenries
L21	Series Peaking Coil	1Ω		32-4112-56				7.2 Microhenries
L22	Shunt Peaking Coil	3.7Ω		32-4653-5	19-3160		6120	150 Microhenries
L23	Series Peaking Coil	4Ω		32-4653-4	19-3100	TV-181	6177	100 Microhenries
L24	4.5MC Trap	1.8Ω		32-4644-3				
L25	Shunt Peaking Coil	8Ω		32-4653-6				220 Microhenries
L26	Shunt Peaking Coil	6.5Ω		32-4653-1	19-3180	TV-184	6180	180 Microhenries
L27	Series Peaking Coil	6.5Ω		32-4653-1	19-3180	TV-184	6180	180 Microhenries
L28	Sound IF	4.2Ω		32-4644-4				
L29	Ratio Det.	8Ω	1.7ΩCT	32-4673	17-3499			Tertiary winding -1.4Ω
L30	RF Choke	2.2Ω		32-4112-50	19-1006		4624	15 Microhenries
L31	RF Choke	2.2Ω		32-4112-50	19-1006		4624	15 Microhenries
L32	RF Choke	2.2Ω		32-4112-50	19-1006		4624	15 Microhenries

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA							NOTES
	PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	
L33	180Ω		32-4672-1							

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	PHILCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L34	.300ADC	41Ω	1.3HY	32-8710	C5037 ①			26C44	C-23X

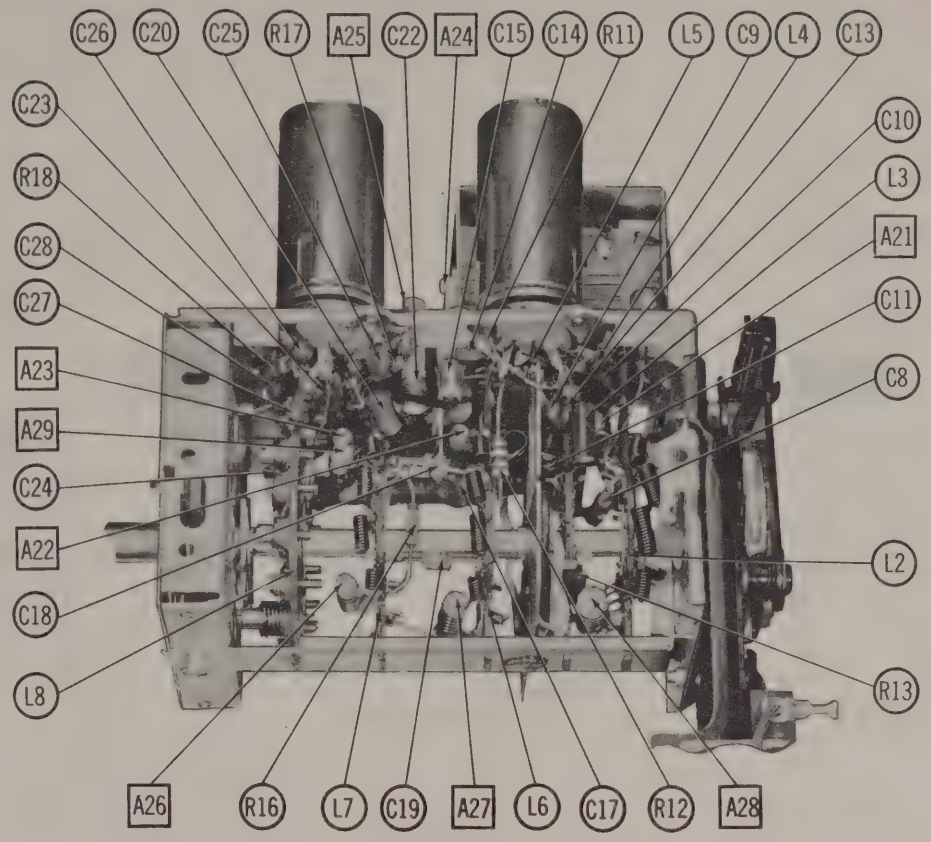
① Drill one new mounting hole.

FUSES

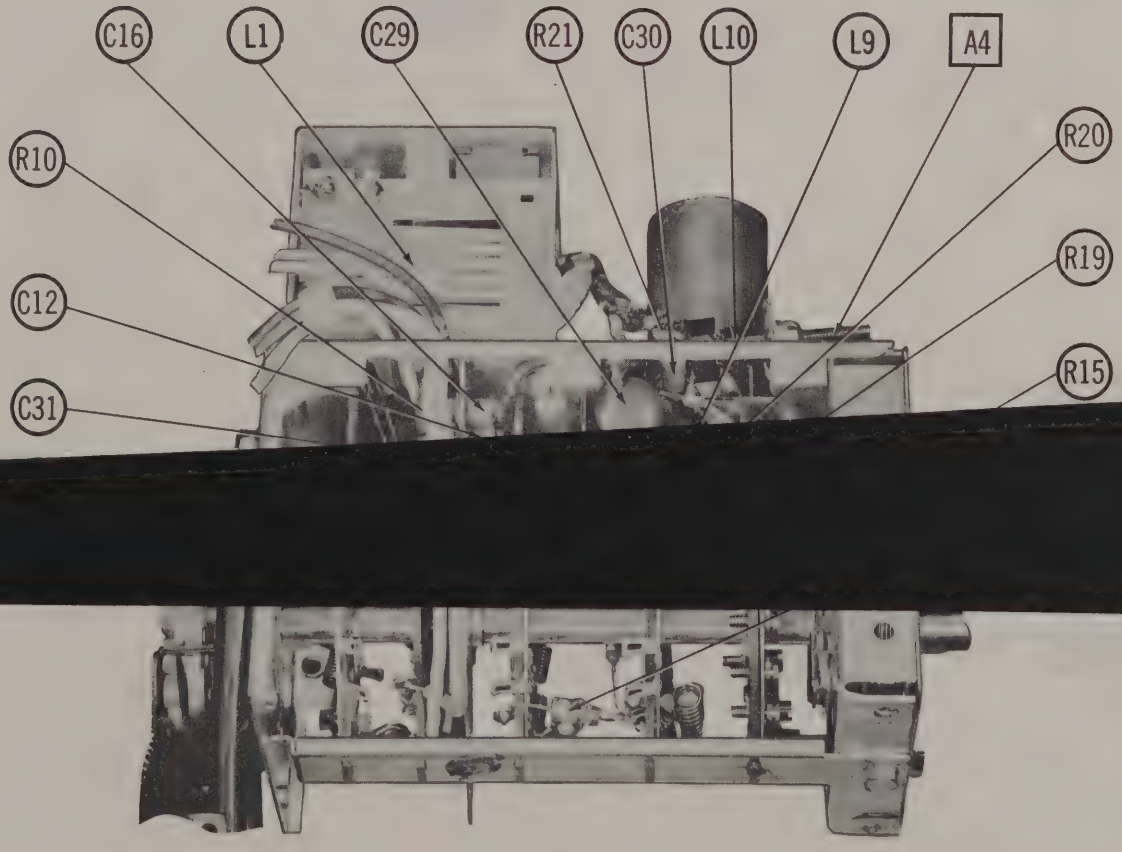
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			PHILCO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1 M2 M3	3AG S/B 1" Pc. #26 Wire 1" Pc. #26 Wire	7/10A 250V	AD-2246-15		313.750 (3AG S/B-3/4A)	357001	MDL 7/10	4405

MISCELLANEOUS

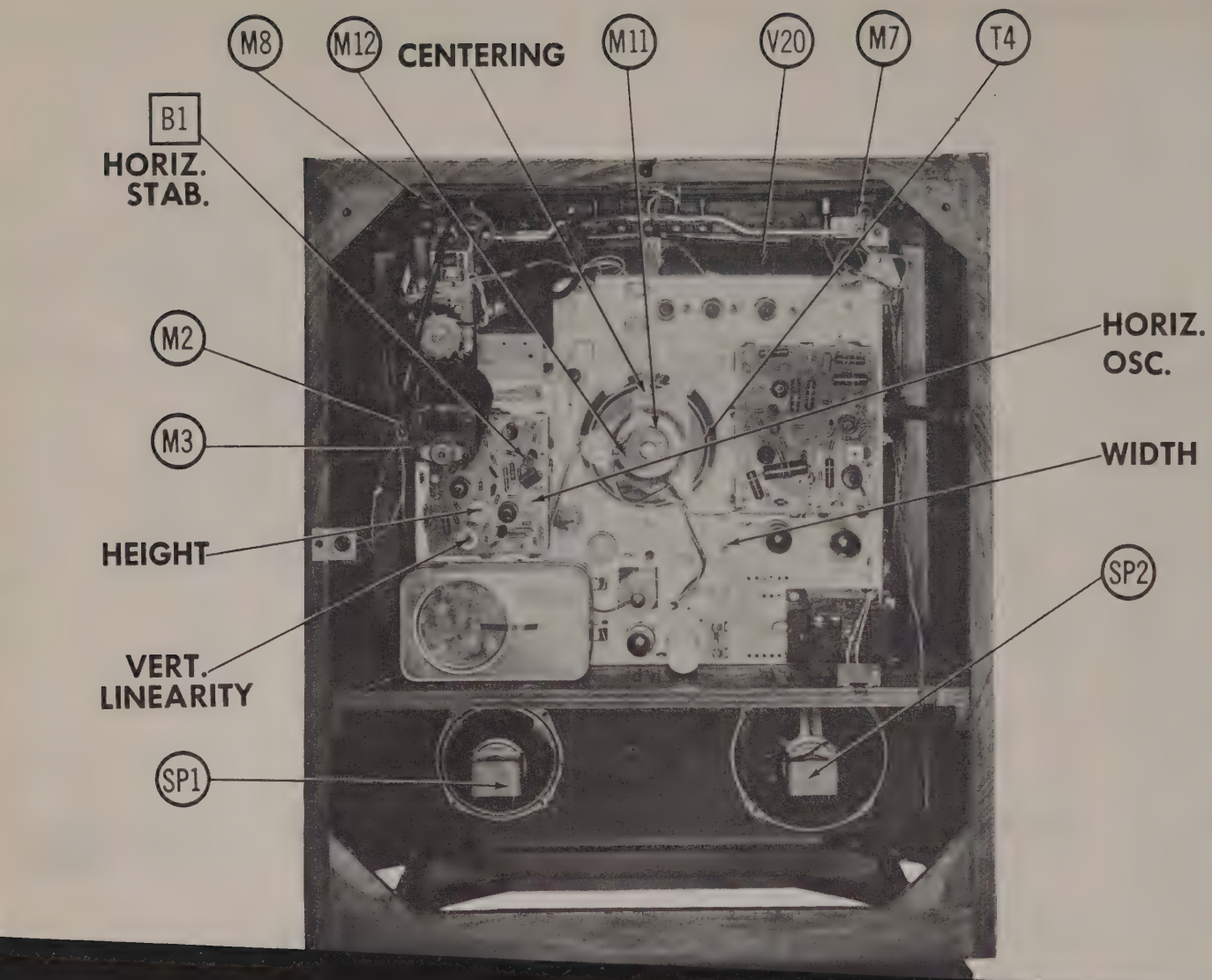
ITEM No.	PART NAME	PHILCO PART No.	NOTES
M4	Dial Light	3463-4	#1847
M5	Tuner	76-9531-1	VHF (T-62A)
M6	Switch	42-2035-1	Range (Rotary, wafer type)
M7	Switch	76-9747	On-off (power) SPST
M8	Switch	76-9739-1	Stepper actuating (micro type)
M9	Switch	42-2051-1	"Hold" - Stepper unit
M10	Motor	41-2055	Stepper unit drive
M11	Focus Magnet	76-9511-2	Includes centering device
M12	Ion Trap	76-6077-4	
M13	Correction Magnet	76-8474-2	Not used in some versions
	Trimmer Cap.	31-6473-34	Video output response (9-120MMF)
	Cabinet	11145	Mahogany - Model 24D6126M
	Cabinet	11153	Cherry - Model 24D6320C
	Cabinet	11153-1	Mahogany - Model 24D6320M
	Cabinet	11145-1	Light - Model 24D6126L
	Knob	54-6204	Brightness, contrast, horiz. hold, vert. hold - All models
	Knob	76-9722	Channel Selector - All models
	Knob	54-6196	Fine tuning - All models
	Knob	54-6204-1	Range switch - All models
	Knob	76-9728	Tone - All models
	Knob	54-6198	Volume - All models
	Pushbutton	54-9591-2	On-off (power) - All models
	Pushbutton	54-9591-3	Stepper unit - All models
	Mask	54-9033-13	All models
	Safety Glass	54-9213-61	All models



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

1. Turn the contrast control counter clockwise until the blanking is visible.

2. Set the horizontal hold control to the center of its range.

3. Short out the horizontal stabilizing coil (L33) by clipping a .1MFD capacitor from point (F) to chassis.

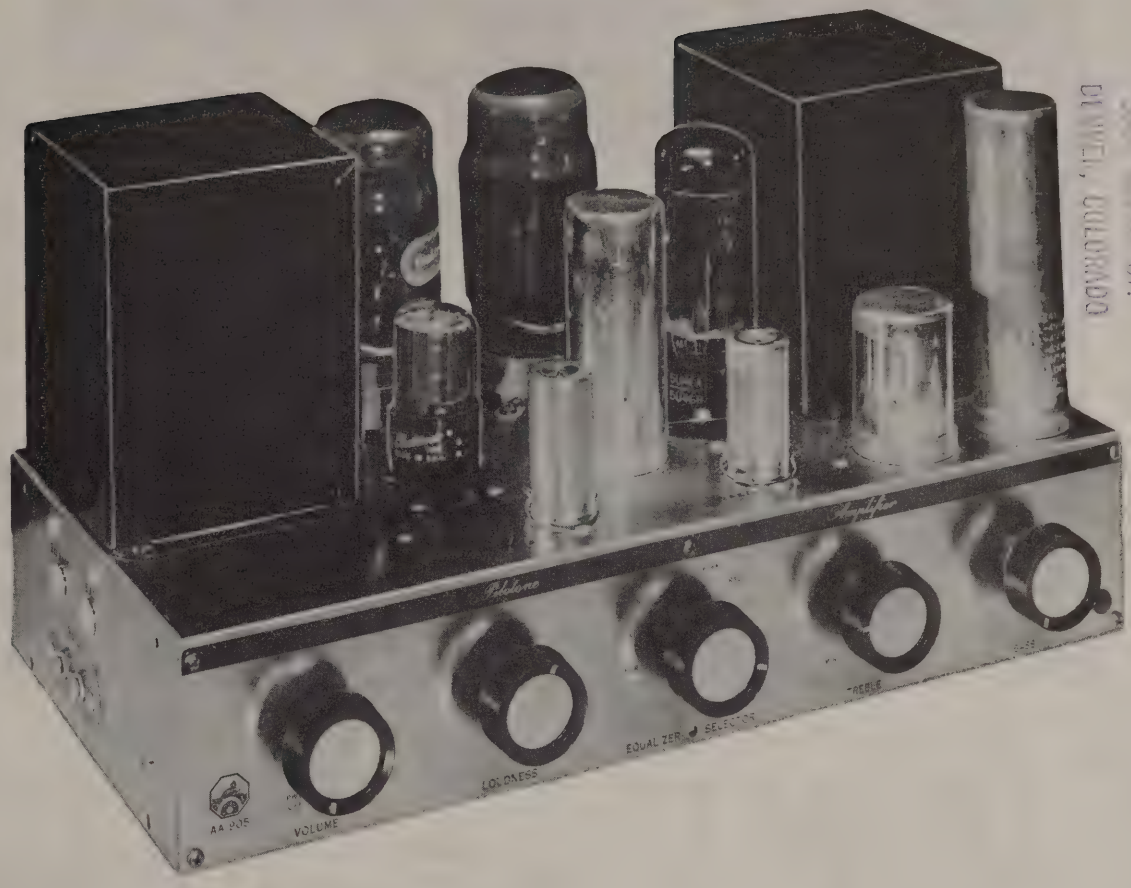
4. Adjust horizontal oscillator control (R8) until equal blanking appears on each side of the raster. This can be done by decentering the picture, first to one side and then the other, by moving the wobble plate.

5. Remove the shorting capacitor.

6. Adjust the stabilizing slug (B1) until the picture is brought into sync with equal blanking on each side. The wobble plate is used as in step 4.

7. Check the pull-in by turning the horizontal hold control until the picture goes out of sync and then slowly bring the picture back into sync. This pull-in should occur between $2\frac{1}{2}$ to 3 bars. If pull-in is not correct, repeat the above steps. Adjust the width control for a picture slightly wider than necessary to fill the screen horizontally.

PILOT
MODEL AA-905



PILOT
MODEL AA-905

TRADE NAME	Pilot Model AA-905
MANUFACTURER	Pilot Radio Corp., 37-06 36th St., Long Island City 1, N. Y.
TYPE SET	AC Operated Audio Amplifier
TUBES (Seven)	Types 12AX7 Phono Preamplifier, 12AX7 AF Amplifier, 6SN7GT AF Amp. - Phase Inv., 6SN7GT Driver, (2) KT66 Output, 5U4GA Rectifier
POWER SUPPLY	105-120 Volts AC-60 Cycles RATING 1.4 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1956 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Phono Preamplifier	12AX7	
V2	AF Amplifier	12AX7	
V3	AF Amplifier-Phase Inv.	6SN7GT	
V4	Driver	6SN7GT	

ITEM No.	USE	TYPE	NOTES
V5	Output	KT66	
V6	Output	KT66	
V7	Rectifier	5U4GA	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA PILOT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	40	350	24-144	PRS350V40	BR4035	TC78	TD-40-350	FM-4540	TVA-1611
C2A	▲40	450	24-141	AFH4-94-90	D122	FP376 . 8	TMQ-120	Q-067	
B	■80	450			BR1250	TC80	TD-10-450	MTD-4540	
C	▲40	450							
D	10	475							
C3	80	350	24-145	PRS450V80	BR8045	TC60	TD-80-350	MT-4580	TVA-1716
C4	10	100	24-143	PRS150V10	BR1015	TC42	TD-10-150	FM-1512	TVA-1406
C5	10	100	24-143	PRS150V10	BR1015	TC42	TD-10-150	FM-1512	TVA-1406
C6	750	35	24-140	AFH1-14	A017		TMS-15		R2244 *
							TD-250-50		
C7A	▲40	450	24-142	AFH4-19-50	D017	FP476	TMQ-18	Q-075	TVL-4840
B	■10	475							
C	▲10	475							
D	20	475							
C8	20	3	24-137	SRE25V20	BR202	TC26	TD-25-25	FM-0225	TVA-1205

* Non Catalog Item.

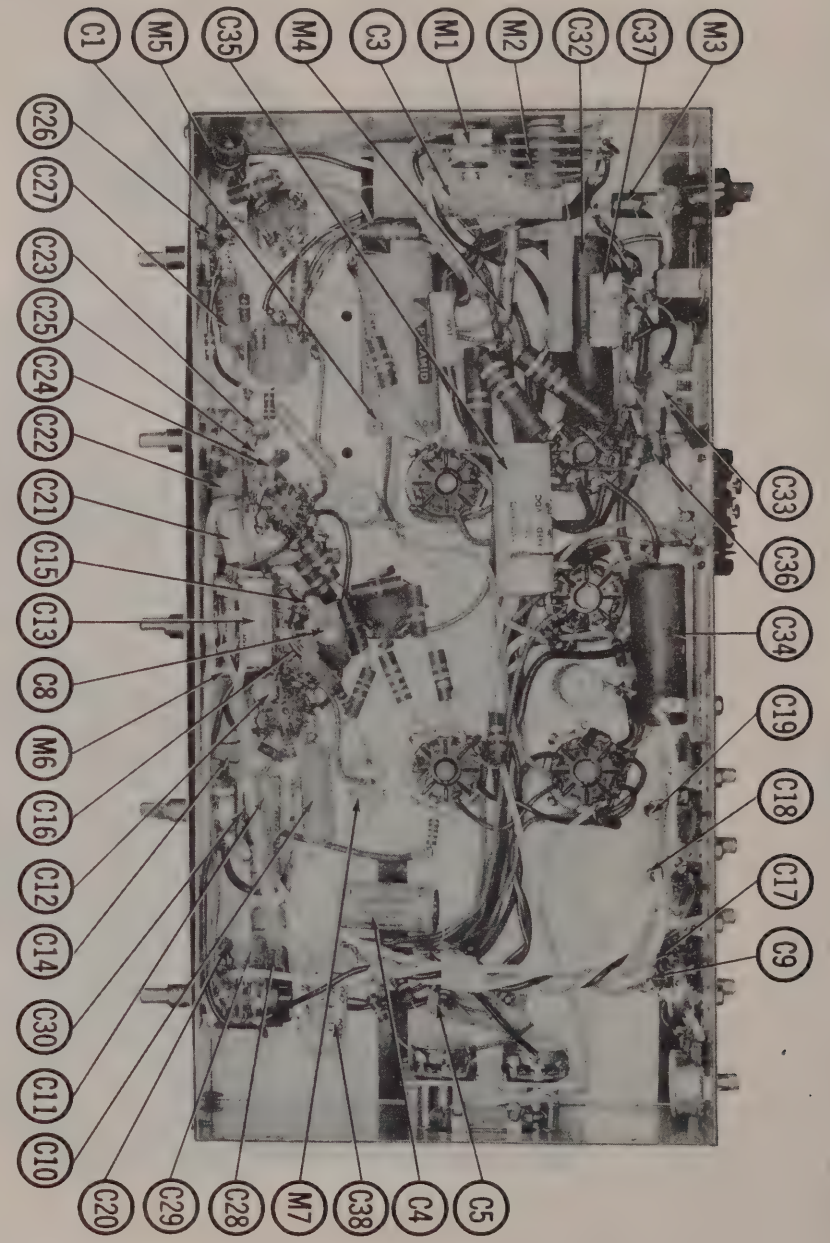
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA PILOT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C9	250			NPO-SI250	D6-251	22R5T25	811-251	MCB240	MS-325	
C10	. 047	400		BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C11	. 047	600		BPD-05	DF-503	CUB6S47		PT6147	6TM-S47	
C12	. 0051	400		1464-0051		1R5D51			MS-251	
C13	. 022	400								
C14	. 033	400								
C15	800					1R5T8		MCB251	MS-38	
C16	. 022	600		BPD-02	DF-203	CUB6S22	817-02	PT6122	6TM-S22	
C17	250			NPO-SI250	D6-251	22R5T25	811-251	MCB240	MS-325	
C18	250			NPO-SI250	D6-251	22R5T25	811-251	MCB240	MS-325	
C19	250			NPO-SI250	D6-251	22R5T25	811-251	MCB240	MS-325	
C20	250			NPO-SI250	D6-251	22R5T25	811-251	MCB240	MS-325	
C21	. 01	400		BPD-01	D6-103	CUB4S1	GP3-333-103	PT411	4TM-S1	
C22	. 033	600		BPD-03	DF-303	CUB6S33		PT6133	6TM-S33	
C23	50			NPO-SI50	D6-500	Z034	NPO-338-500	ZT-545	5TCC-Q5	
C24	1000			1464-001		1R5D1	811-102	MCB255	MS-21	
C25	6. 8			NPO-SI6. 8	TCZ-6R8	TZ08	NPOA-6R8	ZT-5568	5TCCB-V68	
C26	1200			1464-0012		1R5D12	811-122		MS-212	
C27	. 047	400								
C28	. 033	600		BPD-03	DF-303	CUB6S33		PT6133	6TM-S33	
C29	100			NPO-SI100	D6-101	TZ30	801-101	ZT-531	5TCC-T1	
C30A	150		†							
B	50									
C	2500									
D	2500									
C31	330			SI330	D6-331	TP43	GP2K-331	UC-5333	5GA-T33	Note #1
C32	. 25	600		P688N-25		CUB6P25		PT6025	6TM-P25	
C33	. 25	600		P688N-25		CUB6P25		PT6025	6TM-P25	
C34	. 25	600		P688N-25		CUB6P25		PT6025	6TM-P25	
C35	. 25	600		P688N-25		CUB6P25		PT6025	6TM-P25	
C36	500			SI500	D6-501	TP47	GP2K-501	UC-535	5GA-T5	
C37	. 01	600		BPD-01	D6-103	CUB6S1	GP3-333-103	PT611	6TM-S1	
C38	. 047	600		BPD-05	DF-503	CUB6S47		PT6147	6TM-S47	

† Items C30A, C30B, C30C, C30D, R39A, R39B are combined in one unit.
Note #1. Not used in some versions.

CHASSIS—BOTTOM VIEW



CHASSIS—BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	PILOT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	500K		B36-57			Tapped @300K & 180K Volume & Switch Tapped @280K & 450K Loudness Tapped @ 350K & 600K
B	1Meg	1/2		C1-70		
R2	1Meg	1/2	36-61			

(continued)

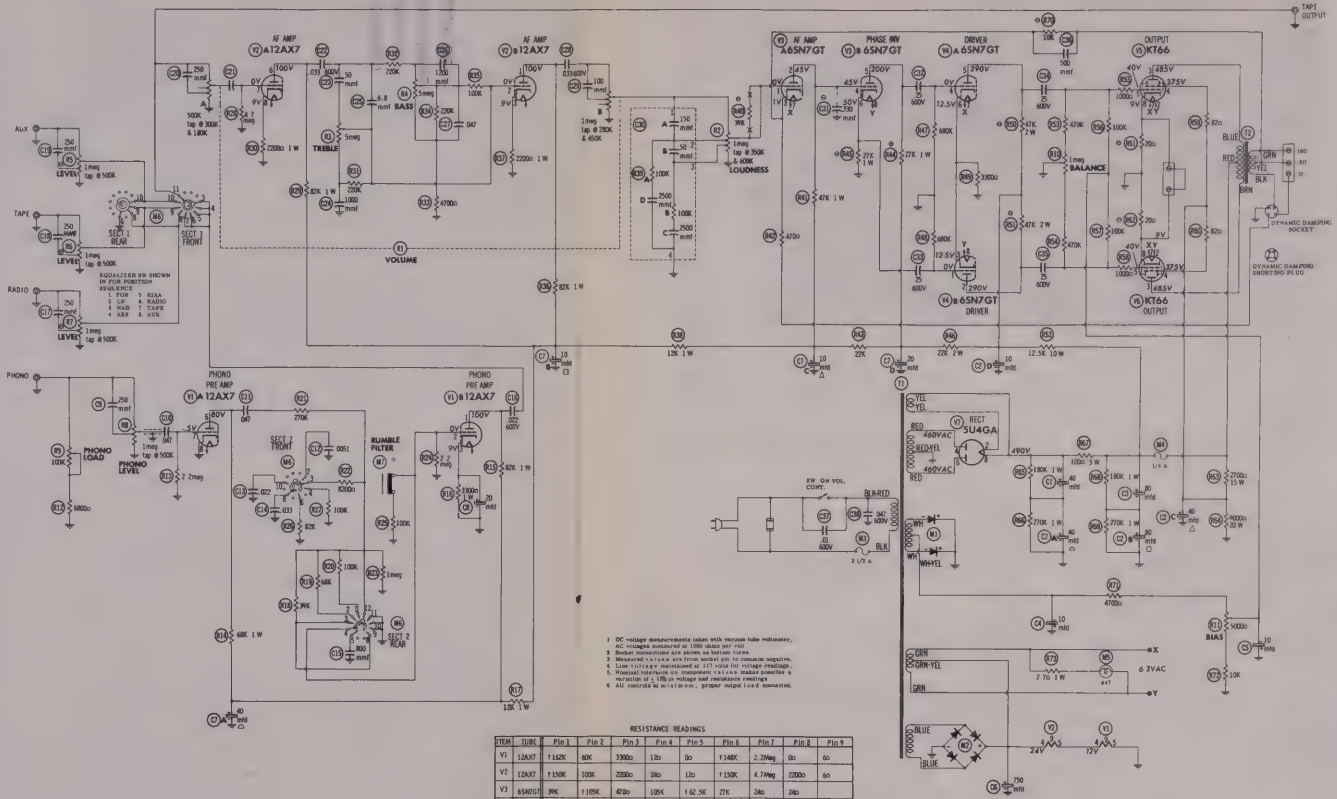
REPLACEMENT DATA

ITEM	TUBE	Pin 1
V1	12AX7	†162K
V2	12AX7	†150K
V3	6SN7GT	39K
V4	6SN7GT	680K
V5	KT66	TP
V6	KT66	NC
V7	5U4GA	TP

ALL MEASU
† MEAS
NC NO CO
TP TIE P

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1956



1 DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2 Socket connections are shown as bottom view
3 Measured values are from socket pin to common negative.
4 Line voltage maintained at 117 volts for voltage readings.
5 Nominal tolerance on component values makes possible a variation of ±10% in voltage and resistance readings
6 All controls in mid-item, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†162K	60K	330Ω	12Ω	0Ω	†148K	2.2MEG	0Ω	0Ω
V2	12AX7	†150K	100K	220Ω	24Ω	12Ω	†150K	4.7MEG	220Ω	0Ω
V3	6SN7GT	39K	†105K	47Ω	105K	†62.5K	27K	24Ω	24Ω	
V4	6SN7GT	680K	†60K	330Ω	680K	†60K	330Ω	24Ω	24Ω	
V5	KT66	TP	24Ω	†230Ω	†270Ω	110K	TP	24Ω	20Ω	
V6	KT66	NC	24Ω	†220Ω	†270Ω	110K	TP	24Ω	20Ω	
V7	5U4GA	TP	11K	NC	70Ω	NC	65Ω	NC	11K	

ALL MEASUREMENTS TAKEN IN LP POSITION UNLESS OTHERWISE DESIGNATED.
† MEASURED FROM PIN 8 OF V7.
NC NO CONNECTION
TP TIE POINT

θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1956

PROPERTY OF
L. F. BLANKENSHIP
3014 MEADE ST.
DENVER, COLORADO

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a Deluxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

SILVERTONE MODEL 6121 (Ch. 528.42200)

TRADE NAME Silvertone

MODELS	CHASSIS
6107	528.35001, 528.35002
6107, 6109	528.35003, 528.42300, 528.42301, 528.42302
6127	528.35301, 528.35302, 528.35303
6111	528.35303
6111, 6127	528.35304, 528.42100, 528.42101, 528.42102
6129, 6131, 6191	528.35305, 528.35601
6129, 6130, 6131, 6191, 6192	528.35602
6115, 6117	528.35603, 528.42401
6115, 6117, 6129, 6130, 6131, 6191, 6192	528.35604
6115Y	528.35605
6115, 6117, 6129, 6131, 6191	528.35606
6171	528.37300, 528.37301
6121	528.37900, 528.37901, 528.42103, 528.42200, 528.42201, 528.42202
6101	528.38900, 528.38901, 528.38902, 528.42000, 528.42001, 528.42002
5161, 5171	528.39300
6113, 6115, 6117, 6129, A, 6131, A, 6191, 6165	528.42400
6115, 6117, 6129, 6131, 6165	528.42402
6115, 6117, 6129, 6131, 6165, 6167	528.42403, 528.42404
6171, 6173	528.42500, 528.42501, 528.42502, 528.42503
6100	528.42900, 528.43500, 528.43501
6106, 6108	528.43000, 528.43600, 528.43601
6110, 6126	528.43700, 528.43701
6112, 6114, 6116, 6128, 6130, 6164, 6166, 6192	528.43800 & Radio Ch. 528.40300,* 528.43801
6120	528.43900, 528.43901
6170, 6172	528.44000, 528.44001
6174, 6176, 6184, 6186	528.44200, 528.44201, 528.44900, 528.44901, 528.45000, 528.45001, 528.45200, 528.45201
6160	528.45500, 528.45501, 528.45600, 528.45601
6190, 6192A	528.45900, 528.45901, 528.47600, 528.47700

SUPPLIER Sears Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois
TYPE SET Television Receiver
TUBES Seventeen
POWER SUPPLY 110-120 Volts AC-60 Cycle RATING 1.28 Amp. @ 117 Volts AC
TUNING RANGE Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

INDEX

Alignment Instructions 11
Disassembly Instructions 1
Horizontal Sweep Circuit Adjustments 24
Parts List and Descriptions ..... 15 thru 18
Photographs
- Cabinet-Rear View 24
- Capacitor & Alignment Identification 3, 10
- Chassis-Top View 22
- RF Tuner 14, 19
- Resistor & Inductor Identification 4, 9

Resistance Measurements 8
Servicing in the Field 1
Schematic (Alternate Tuners) 6, 7, 12, 13, 20, 21
Schematic (TV) 2
Schematic (UHF Tuners) 23
Tube Failure Check Chart 5
Tube Placement Chart (Bottom View) 8
Tube Placement Chart (Top View) 5

* FOR SERVICE INFORMATION ON RADIO MODEL 5045, Ch. 528.40300, SEE PHOTOFACT FOLDER 288, FOLDER 8.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1956 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

SILVERTONE MODELS 5161, 5171, 6100, 6101, 6106, 6107, 6108, 6109, 6110, 6111, 6112, 6113, 6114, 6115, Y, 6116, 6117, 6120, 6121, 6126, 6127, 6128, 6129, A, 6130, 6131, A, 6160, 6164, 6165, 6166, 6167, 6171, 6172, 6173, 6174, 6176, 6184, 6186, 6190, 6191, 6192, A

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

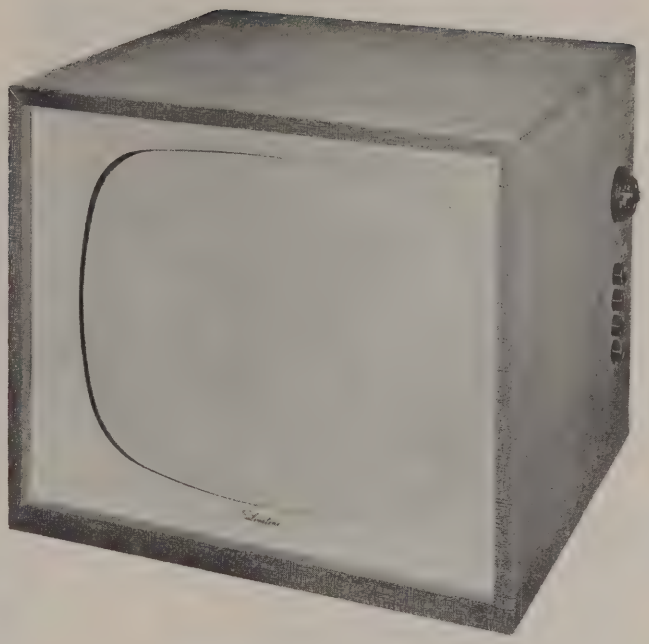
1. Remove 8 push-on type control knobs from side panel of cabinet.

2. Remove 9 wood screws. Remove rear cover.

3. Remove picture tube socket, HV lead, yoke plug and speaker leads.

4. Remove 4 chassis nuts. Remove chassis.

5. Remove 2 speaker nuts. Remove speaker.



MODEL	CHASSIS
6121	528.42200

SILVERTONE MODELS 5161, 5171, 6100, 6101, 6106, 6107, 6108, 6109, 6110, 6111, 6112, 6113, 6114, 6115, Y, 6116, 6117, 6120, 6121, 6126, 6127, 6128, 6129, A, 6130, 6131, A, 6160, 6164, 6165, 6166, 6167, 6171, 6172, 6173, 6174, 6176, 6184, 6186, 6190, 6191, 6192, A

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

For touch-up adjustment of VHF tuner oscillator adjustments, it is necessary to remove the chassis from the cabinet. (See alignment instructions on page 11.)

PICTURE TUBE SAFETY GLASS CLEANING

Remove 3 wood screws holding metal molding at top edge of the safety glass. Remove molding and safety glass. Use extreme catuion when removing safety glass.

SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 5.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to the chassis. Adjustment is located on top of the chassis. Set the horizontal hold control at the center of its range and adjust the horizontal frequency slug (L27) until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

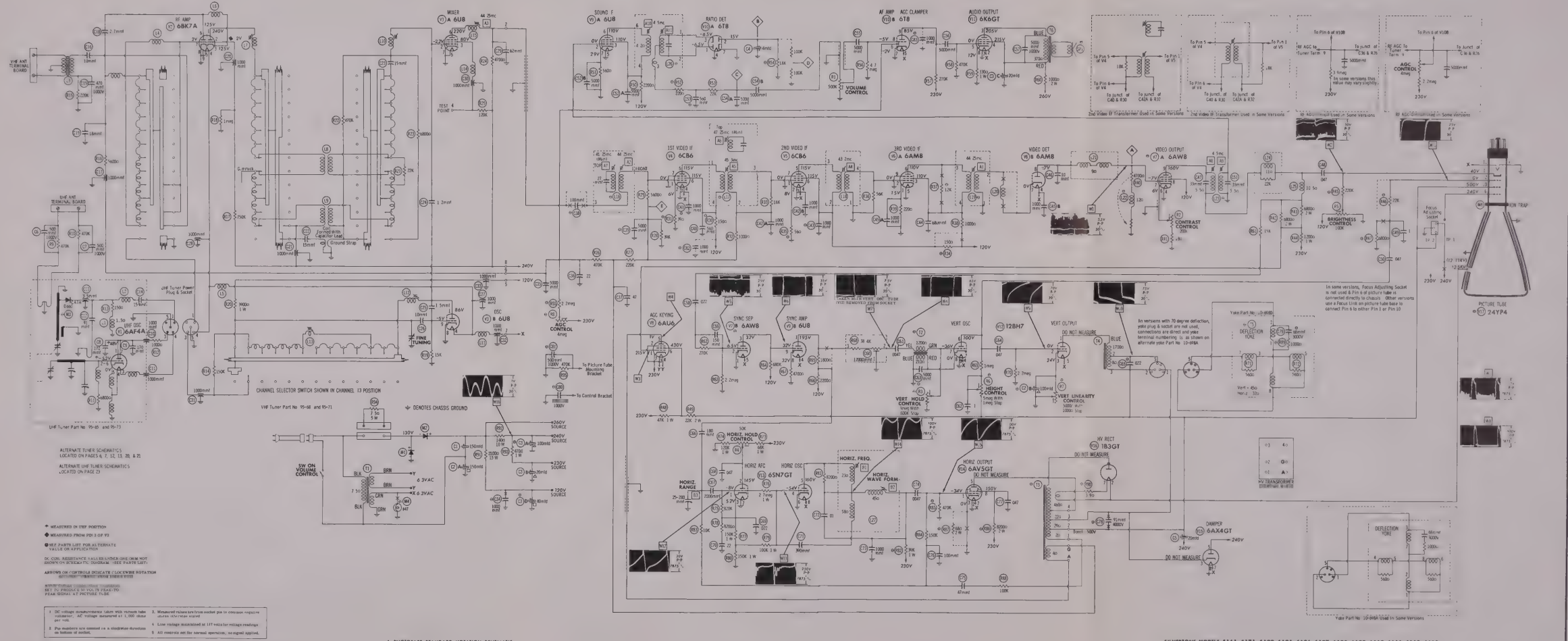
To eliminate sound IF detector buzz, adjust the the ratio detector secondary (L26) located on top of the chassis.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1956 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America


RF AMP 6BK7A
MIXER 6U8
SOUND IF 6U8
RATIO DET 6T8
AF AMP AGC CLAMPER 6T8
AUDIO OUTPUT 6K6GT
1ST VIDEO IF 6CB6
2ND VIDEO IF 6CB6
3RD VIDEO IF 6AM8
VIDEO DET 6AM8
VIDEO OUTPUT 6AW8
AGC KEYING 6AU6
SYNC SEP 6AW8
SYNC AMP 6U8
VERT OSC 12BH7
VERT OUTPUT
HORIZ AFC 6SN7GT
HORIZ OSC
HORIZ OUTPUT 6AV5GT
HV RECT 1B3GT
DAMPER 6AX4GT
UHF OSC 6AF4A
PICTURE TUBE 24YP4
VOLUME CONTROL
AGC CONTROL
CONTRAST CONTROL
BRIGHTNESS CONTROL
HEIGHT CONTROL
VERT LINEARITY CONTROL
HORIZ HOLD CONTROL
HORIZ RANGE
HORIZ WAVE FORM
VERT HOLD CONTROL
FINE TUNING
SW ON VOLUME CONTROL
ION TRAP
DEFLECTION YOKE
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
DENOTES CHASSIS GROUND
DO NOT MEASURE
260V SOURCE
240V SOURCE
230V SOURCE
120V SOURCE
6.3VAC
UHF ANT TERMINAL BOARD
VHF ANT TERMINAL BOARD
UHF Tuner Power Plug & Socket
UHF Tuner Part No 95-65 and 95-73
VHF Tuner Part No 95-68 and 95-71
ALTERNATE TUNER SCHEMATICS LOCATED ON PAGES 6, 7, 12, 13, 20, & 21
ALTERNATE UHF TUNER SCHEMATICS LOCATED ON PAGE 23
Yoke Part No. 10-648D
Yoke Part No 10-648A Used In Some Versions
In some versions, Focus Adjusting Socket is not used & Pin 6 of picture tube is connected directly to chassis. Other versions use a Focus Link on picture tube base to connect Pin 6 to either Pin 1 or Pin 10
In versions with 70 degree deflection, yoke plug & socket are not used, connections are direct and yoke terminal numbering is as shown on alternate yoke Part No 10-648A
2nd Video IF Transformer Used in Some Versions
RF AGC Not Used in Some Versions
RF AGC Not Used in Some Versions
HV TRANSFORMER TERMINAL BOARD
TEST 4 POINT
G. PINCH
To Picture Tube Mounting Bracket
To Control Bracket

SILVERTONE MODELS 5161, 5171, 6100, 6101, 6106, 6107, 6108, 6109, 6110, 6111, 6112, 6113, 6114, 6115, Y, 6116, 6117, 6120, 6121, 6126, 6127, 6128, 6129, A, 6130, 6131, A, 6160, 6164, 6165, 6166, 6167, 6171, 6172, 6173, 6174, 6176, 6184, 6186, 6190, 6191, 6192, A

- ◆ MEASURED IN STBY POSITION
- ◆ MEASURED FROM PIN 3 OF V3
- SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE (ALL RESISTORS UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM - SEE PARTS LIST).

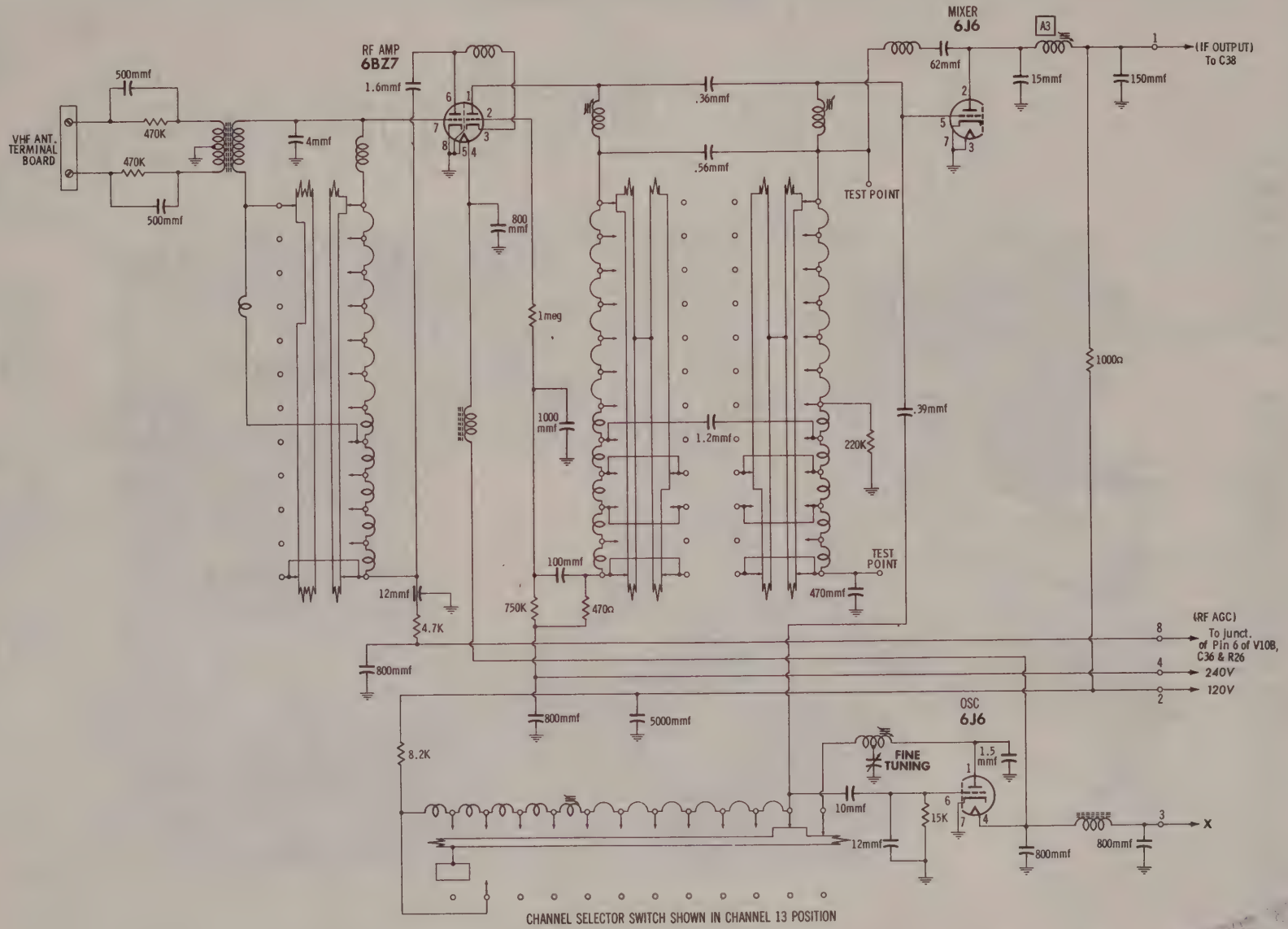
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION

1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1956

SILVERTONE MODELS 5161, 5171, 6100, 6101, 6106, 6107, 6108, 6109, 6110, 6111, 6112, 6113, 6114, 6115, Y, 6116, 6117, 6120, 6121, 6126, 6127, 6128, 6129, A, 6130, 6131, A, 6160, 6164, 6165, 6166, 6167, 6171, 6172, 6173, 6174, 6176, 6184, 6186, 6190, 6191, 6192, A

CHASSIS TOP VIEW



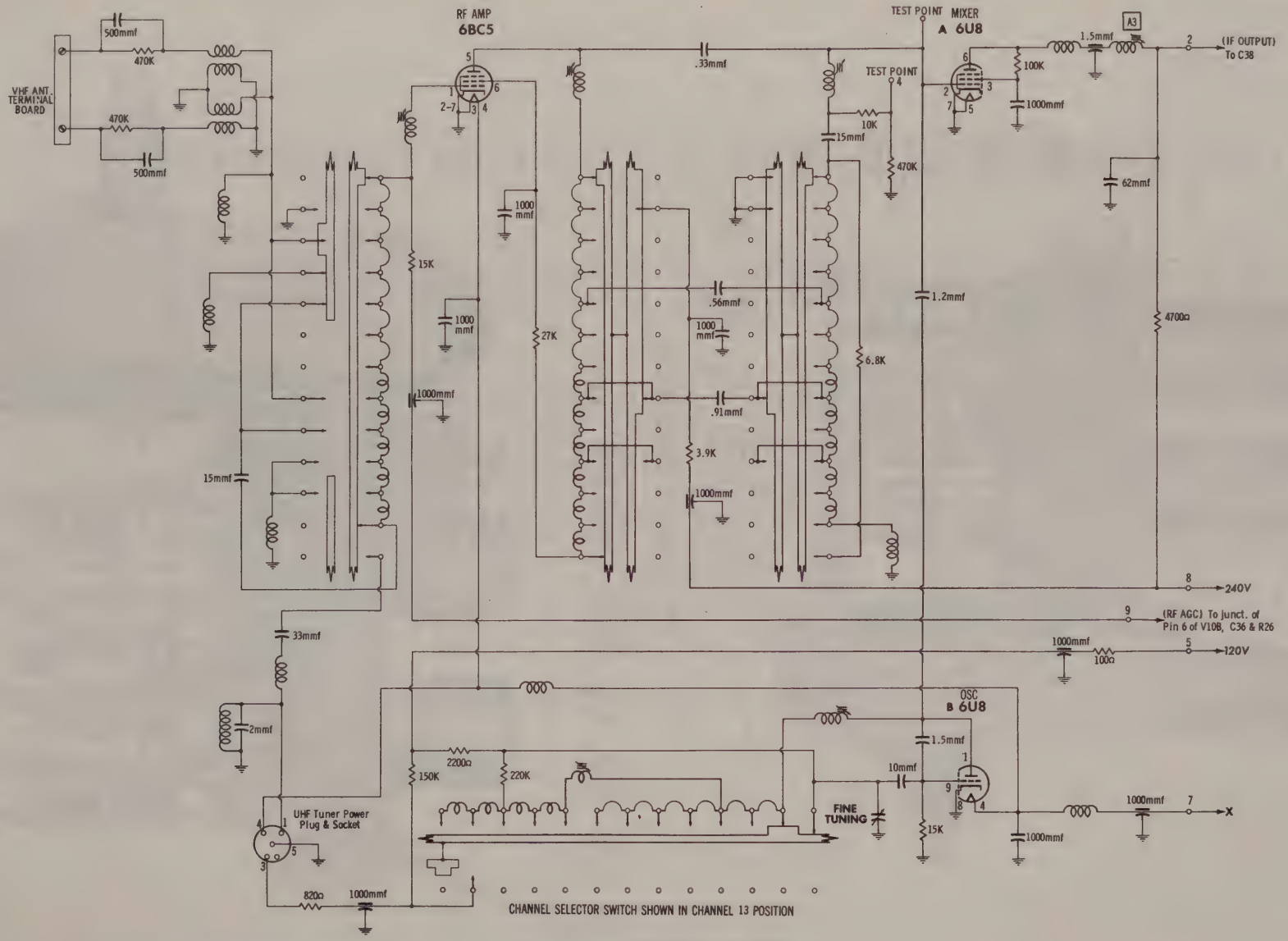
VHF Tuner Part No. 95-55

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1956

ALTERNATE VHF TUNER SCHEMATIC

SILVERTONE MODELS 5161, 5171, 6100, 6101, 6106, 6107, 6108, 6109, 6110, 6111, 6112, 6113, 6114, 6115, Y, 6116, 6117, 6120, 6121, 6126, 6127, 6128, 6129, A, 6130, 6131, A, 6160, 6164, 6165, 6166, 6167, 6171, 6172, 6173, 6174, 6176, 6184, 6186, 6190, 6191, 6192, A

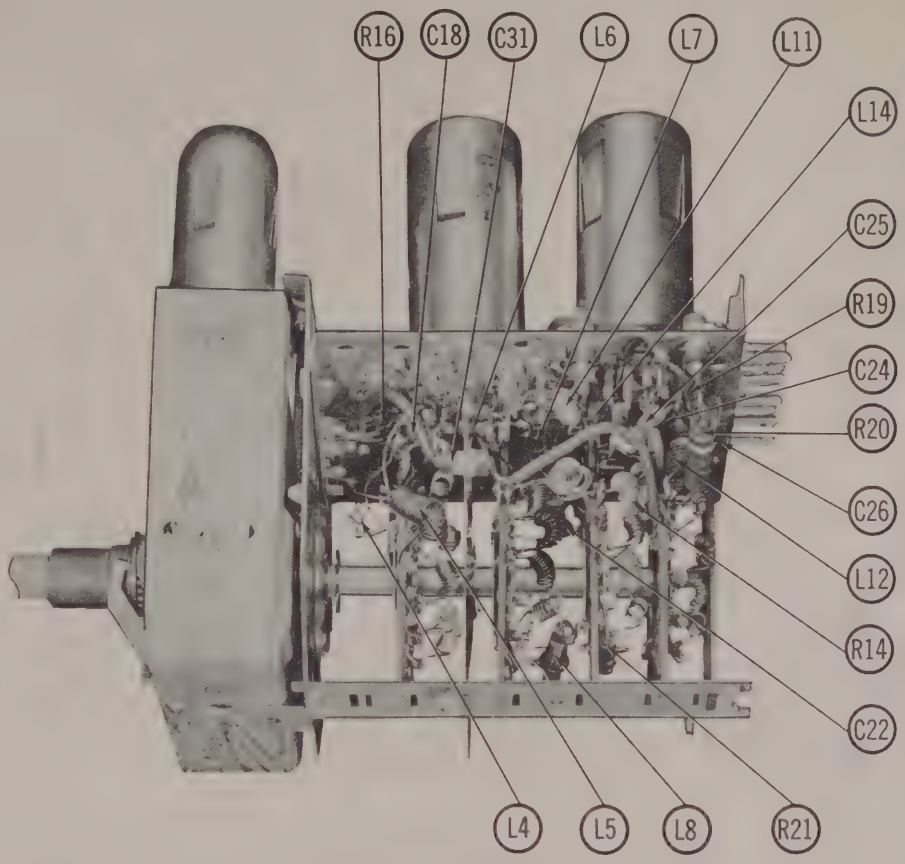


A PHOTOFACT STANDARD NOTATION SCHEMATIC

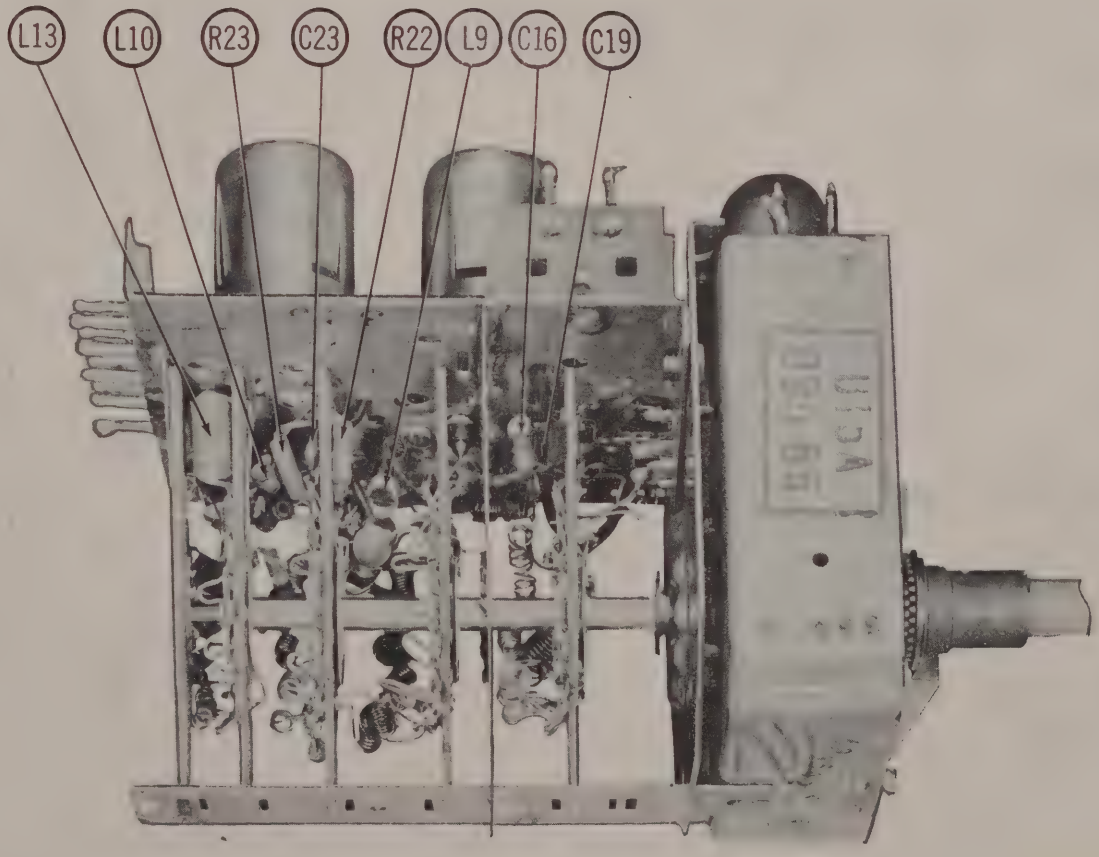
© Howard W. Sams & Co., Inc. 1956

VHF Tuner Part No. 95-51 and 95-62

ALTERNATE VHF TUNER SCHEMATIC



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

PROPERTY OF
L. F. P...KINSHIP
3...E...STREET
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS (cont)

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
	Tuner	95-69	VHF-UHF Combination; Consists of VHF section part No. 95-71, and UHF section part No. 95-72. Chassis 528. 42001, 528. 42300, 528. 45001, 528. 44901.
	Tuner	95-70	VHF-UHF Combination; Consists of VHF section part No. 95-71, and UHF section part No. 95-73. Chassis 528. 42000, 528. 42002, 528. 42301, 528. 47700.
M6	Tuner	95-74	VHF - Chassis 528. 43500, 528. 43501, 528. 43700, 528. 43701, 528. 43900 and 528. 43901.
	Tuner	95-75	VHF - Chassis 528. 43600, 528. 43601, 528. 43800, 528. 43801, 528. 44001, 528. 44101, 528. 44201, 528. 45500, 528. 45501, 528. 45900, 528. 45901 and 528. 47600
	Tuner	95-55	VHF - Used with VHF models only.
M7	Centering Device	31-302	Used with deflection yoke (T5) Part #10-698. With deflection yoke part No.'s 10-691, 10-709, 10-710, 10-692, 10-699 centering device is included with yoke rear cover.
M8	Ion Trap	83-830	
B3	Trimmer Cap.	20-152	Horiz. Range (25-280MMF)
	Cabinet	42-740	Models 6115Y, 5161
	Cabinet	42-752	Model 6121
	Cabinet	42-746	Model 6171
	Cabinet	42-745	Model 6131
	Cabinet	42-794	Model 6173
	Cabinet	42-801	Model 6167
	Cabinet	42-748	Model 6111
	Cabinet	42-763	Model 6191
	Cabinet	42-750	Model 6115
	Cabinet	42-760	Model 6117
	Cabinet	42-743	Model 6127
	Cabinet	42-749	Model 6101
	Cabinet	42-751	Model 6107
	Cabinet	42-744	Model 6129
	Cabinet	42-741	Model 5171
	Cabinet	42-805	Model 6113
	Cabinet	42-795	Models 6164, 6165
	Cabinet	42-801	Models 6166, 6167
	Cabinet	42-797	Models 6190A
	Knob	52-582	VHF channel selector - Models 6121, 6165, 613, 6167, 6111, 6115, 6117, 6127, 6101, 6107, 6129, 6115Y, 6113
	Knob	52-589	VHF channel selector - Model 6171
	Knob	52-631	VHF channel selector - Model 6173
	Knob	52-508	VHF channel selector - Models 5161, 5171
	Knob	52-583	UHF channel selector - Models 612, 6131, 6167, 6165, 6113, 6111, 6191, 6115, 6117, 6127, 6101, 6107, 6129, 6115Y
	Knob	52-587	UHF channel selector - Models 6171, 6173
	Knob	52-509	UHF channel selector- Models 5161, 5171
	Knob	52-581	VHF fine tuning - Models 6121, 6131, 6167, 6165, 6111, 6191, 6115, 6117, 6127, 6101, 6107, 6129, 6115Y, 6113
	Knob	52-588	VHF fine tuning - Models 6171, 6173
	Knob	52-507	VHF fine tuning - Models 5161, 5171
	Disc	52-510	UHF channel indicator - Models 6121, 6131, 6167, 6111, 6191, 6115, 6117, 6127, 6101, 6107, 6129, 6115Y, 5161, 5171, 6113, 6125
	Disc	52-590	UHF channel indicator - Models 6171, 6173
	Knob	52-579	On-off-volume - Models 6121, 6167, 6111, 6127, 6101, 6171, 6173, 6164, 6165, 6166
	Knob	52-465	On-off-volume - Models 5161, 5171
	Knob	52-576	Contrast - Models 6121, 6167, 6111, 6127, 6101, 6171, 6173, 6164, 6165, 6166
	Knob	52-466	Contrast - Models 5161, 5171
	Knob	52-578	Vert. hold - Models 6121, 6167, 6111, 6127, 6101, 6171, 6173, 6164, 6165, 6166
	Knob	52-464	Vert. hold - Models 5161, 5171
	Knob	52-577	Horiz. hold - Models 6121, 6167, 6111, 6127, 6101, 6171, 6173, 6164, 6165, 6166
	Knob	52-467	Horiz. hold - Models 5161, 5171
	Knob	52-584	VHF channel selector - Models 6164, 6166, 6190A
	Knob	52-585	VHF fine tuning - Models 6164, 6166, 6190A
	Knob	52-633	Brightness - Models 6167, 6111, 6173, 6121, 6107, 6113, 6111, 6164, 6165, 6166, 6115, 6129, 6131
	Knob	52-575	Auxiliary controls (4 used) - Models 6131, 6191, 6115, 6117, 6107; 6129, 6115Y, 6113, 6190A
	Safety glass	48-105	Models 6121, 6171
	Safety glass	48-95	Models 6127, 6167, 6111, 6131, 6129
	Safety glass	48-104	Model 6101
	Safety glass	48-106	Model 6173
	Safety glass	48-103	Models 6115, 6117, 6191, 6115Y, 6113
	Safety glass	48-102	Model 6107
	Safety glass	48-101	Models 5161, 5171
	Mask	31-306	Model 6121
	Mask	31-307	Models 6171, 6173
	Mask	31-303	Models 6127, 6111
	Mask	31-305 *	Models 6117, 6115, 6129, 6131, 6167, 6115Y, 6113, 6164, 6165, 6166
	Mask	31-304	Model 6101
	Mask	31-313	Model 6191
	Mask	31-311	Model 6107
	Mask	31-295	Models 5161, 5171

* Alternate part #31-331 or 31-334.

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP	RATING VOLT	REPLACEMENT DATA SILVERTONE PART No.	ABBOVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C55	5000		15-320	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C56	5000		15-320	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C57	5000	1000	15-325	HVD-15-4700	DD-502	VD47	1R5KV-472		10GA-D5	
C58	022	400	15-248	DPD-22	DE-SBB	CUB4S22	817-02	PT4122	47M-S22	
C59	15		15-395	N750-D150	TCN-150	N046	N750-337-151		5TCU-T15	
C60	12000		15-329	HVA-501	TPC-104				10SC12	
C61	0047	400	15-233	1464-0047		1R5D47			MS-247	
C62	1	600	15-206	DP-104	CU5E91			PT601	6TM-P1	
C63	5000		15-320	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	Note 7
C64	047	400	15-447	BPD-05	DF-502	CUB4S47		PT4147	47M-S47	
C65	022	200	15-247	BPD-02	DE-SBB	CUB4S22	817-02	PT4122	47M-S22	Note 8
C66	180	500	15-390	NPO-S180	22S5T18	811-181			5HK-S1	
C67	2000		15-328	BPD-002	DD-302	K072	DE-4QB	DC-523	5HK-2S	
C68	047	400	15-245	BPD-05	DF-503	CUB4S47		PT4147	47M-S47	
C69	022	200	15-243	BPD-02	DF-203	CUB4S22	817-02	PT4122	27M-S22	
C70	22	200	15-230	P388N-22		CUB2P22		PT4022	27M-P22	
C71	390	500	15-273		D6-391	S1S739	811-391		5HK-S3	
C72	01	600	15-263							
C73	1000	500	15-288	1464-001		1R5D1	811-102	MCB355	MS-21	
C74	0047	600	15-233	1464-0047		1R5D47			MS-247	
C75	47		15-265	NPO-D147	TC2-147	Z033	NPO-338-470	2T-5447	5TCC-Q47	
C76	100		15-282		TCL-100					
C77	047	400	15-245	BPD-05	DF-503	CUB4S47		PT4147	47M-S47	
C78	01	4000	15-336							Notes 7, 9
C79	68	3000		HVD-30-68	DD30-680	V3Q68	3KV-680	DC30468	30GA-Q68	Note 10
C80	5000	1000	15-305	HVD-15-4700	DD-502	VD47	1R5KV-472		10GA-D5	Note 8
C81	500	1000		HVD-15-470	DD-501	VY47	1R5KV-471	DC30347	10GA-T5	Note 11
C82	1000		15-347	BPD-001	DD-102	K0HH	801-001	DC-521	5HK-D1	Note 7
C83	1000		15-347	BPD-001	DD-102	K0HH	801-001	DC-521	5HK-D1	Note 7

† Items C60, R68A and R68B are combined in one unit.
Note 3. Used only in models with UHF tuner.
Note 4. Some versions may use a dual 1000MMF unit (part #15-288) in place of C39 and C41.
Note 5. Some versions may use a 560MMF unit (part #15-303) in this application.
Note 6. Some versions may use a 330MMF unit (part #15-329) in this application.
Note 7. Not used in some versions.
Note 8. Some versions may use .047MFD unit (part #16-266) in this application.
Note 9. Some versions may use 270MMF unit (part #15-315) in this application.
Other versions may use 300MMF unit (part #15-356) in this application.
Note 10. Some versions may use 68MMF unit in this application.
Note 11. Some versions may use 1000MMF unit (part #15-305) in this application.
Note 12. Some versions may use 1000MMF unit (part #15-347) in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	A34-521	B6K-50-S	A47-500K-2	Q13-133	U-66	Volume
B	Shaft		Not Req.	Not Req.	K26-3	Not Req.	Not Req.	Attach to R1A.
C	Switch		Not Req.	Not Req.	SWE-13	T6-1	UB-38	Attach to R1A.
R2A	300Ω	½	A35-41	A35-41	A47-300-S	QII-301	U-3	Contrast
B	Shaft		Not Req.	AK-4	K26-3	Not Req.	Not Req.	Attach to R2A.
R3A	1Meg	½	A36-50Ω	†AB-83	†A47A3.0Meg6	† QII-339	† U-316	Vert. Hold
	with 800Ω stop							
B	Shaft		Not Req.	AK-4	K26-3	Not Req.	Not Req.	Attach to R3A.
R4A	50K	½	A35-42	AB-31	A47-50K-S	QII-123	U-35	Horiz. Hold
B	Shaft		Not Req.	AK-4	K26-3	Not Req.	Not Req.	Attach to R4A.
R5A	100K	½	A35-40	AB-40	A47-100K-S	QII-126	TA15L	Brightness
B	Shaft		Not Req.	AK-1	FK6-1	BQ	Not Req.	Attach to R5A.
R6A	5Meg	½	A35-43	♦ AB-86	♦A47-4Meg-S	♦ QII-141	♦ TA26L	Height
	with 1Meg stop							
B	Shaft		Not Req.	AK-1	FK6-1	BQ	Not Req.	Attach to R6A.
R7A	5000Ω	½	A35-53	♦ AB-9	♦A47-5000-S	♦ QII-114	♦ PTA35L	Vert. Linearity
	with 1000Ω stop							
B	Shaft		Not Req.	AK-12	K26-3	Not Req.	Not Req.	Attach to R7A.
R8A	4Meg	½	A35-52	AB-86	A47-4Meg-S	QII-141	PTA46L	AGC-Note
B	Shaft		Not Req.	AK-19	RM-3	Not Req.	Not Req.	Attach to R8A.

Note . Not used in some versions.
† Connect an 82OK resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).
♦ Connect a 1Meg resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).
♦ Connect a 100Ω resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SILVERTONE PART No.	IRC PART No.	NOTES
R9	470K		6047 4M	BTS-470K	
R10	470K		6047 4M	BTS-470K	
R11	6800Ω		106-982	BTS-6800	
R12	1000Ω		106-102	BTS-1000	
R13	150Ω		106-151	BTS-150	
R14	150K		106-154	BTS-150K	
R15	220K		106-224	BTS-220K	
R16	5600Ω		106-562	BTS-5600	
R17	750K		106-754	BTS-750K 5%	
R18	1Meg		106-105	BTS-1Meg	
R19	15K		106-153		
R20	3900Ω	1	107-392	BTA-3900	
R21	22K		106-223		
R22	470K		106-474	BTS-470K	
R23	6800Ω		106-682	BTS-6800	
R24	4700Ω		106-472	BTS-4700	
R25	120K		106-124	BTS-120K	
R26	470K		6047 4K	BTS-470K	
R27	220K		6022 4K	BTS-220K	
R28	39K		6039 3K	BTS-39K	
R29	56Ω		6056 Ω		
R30	150Ω		6015 Ω	BTS-150	Note 1
R31	39Ω		6039 Ω	BTS-39	Note 2
R32	1000Ω		6010 3M	BTS-1000	
R33	18K		6018 3K	BTS-18K	
R34	150Ω		6015 Ω	BTS-150	Note 1
R35	56Ω		6056 Ω	BTS-56	Note 2
R36	56K		6056 3K		
R37	12K		6012 3K		Note 11
R38	1000Ω		6010 3M	BTS-1000	
R39	220Ω		6022 Ω	BTS-220	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SILVERTONE PART No.	IRC PART No.	NOTES
R40	4700Ω		6047 2M	BTS-4700	
R41	18Ω		6018 Ω	BTS-18	
R42	6800Ω	2	6068 2K	BTS-6800	
R43	6800Ω	2	6068 2K	BTA-6800	
R44	1300Ω	1	6013 1K	BTA-1300	
R45	330K		6033 4K	BTS-330K	Note 3
R46	22K			BTS-22K	Note 4
R47	6800Ω			BTS-6800	Note 4
R48	47K	1	6047 3K	BTA-47K	
R49	22K	2	6022 3K	BTS-22K	
R50	2200Ω		6022 2K	BTS-2200	
R51	5600Ω		6056 1K	BTS-560	
R52	220Ω		6022 1Ω	BTS-220	Note 1
R53	22KΩ		6022 3K	BTS-22K	
R54	18K		6018 3K	BTS-18K	Note 5
R55	2.2MΩ		6022 5M	BTS-2.2Meg	Note 8
R56	4.7Meg		6047 5M	BTS-4.7Meg	
R57	270K		6027 4K	BTS-270K	
R58	47K		6047 3K	BTS-47K	
R59	330Ω	1	6033 1K	BTA-330	
R60	1000Ω	2	6010 2M	BTS-1000	
R61	15K		6015 3K	BTS-15K	
R62	270K		6027 4K	BTS-270K	
R63	2.2Meg		6022 5M	BTS-2.2Meg	
R64	680K		6068 4K	BTS-680K	
R65	1800Ω		6018 2K	BTS-1800	
R66	2200Ω		6022 2K	BTS-2200	
R67	4700Ω		6047 2K	BTS-4700	
R68A, B	95.4K		† † 17-109		
R69	1Meg		6010 5M	BTS-1Meg	

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SILVERTONE PART No.	IRC PART No.	NOTES
R70	2.2Meg		6022 5M	BTS-2.2Meg	
R71	560Ω				
R72	680Ω				
R73	6800Ω	1	6068 1K	BTA-68K	
R74	130K	1	6013 4K	BTA-130K	
R75	830K		6083 4K		
R76	2.7Meg	1	6027 5K		
R77	150K	1	6015 4K		
R78	8300Ω		6083 2K		
R79	100K	1	6010 4K		
R80	150K	1	6015 4K		
R81	8200Ω		6082 2K		
R82	39K	1	6039 3K	Note 7	

Note 1. Some versions use a 330Ω 1W resistor in this application (Part #6033310K).
Note 2. Some versions use a 47Ω 1W resistor in this application (Part #6047 00K).
Note 3. Some versions use a 270KΩ 1W resistor in this application (Part #6027 40K).
Note 4. Some versions use a 470OΩ 1W resistor in this application (Part #6047 20K).
Note 5. Some versions use a 12KΩ 1W resistor in this application (Part 6012 30K).
Note 6. Some versions use a 3.3Meg 5% 1W resistor (Part #6033 50J) or a 3.3Meg 5% 1W resistor (Part #6033 50J) in this application.
Note 7. Some versions use a 33KΩ 1W resistor in this application (Part #6033 3K).
Note 8. Some versions use a 10KΩ 1W resistor in this application (Part #6010 3K).
Note 9. Some versions use a 39Ω 1W resistor (Part #6039 0K). In this application.
Note 10. Some versions use an 82Ω 1W resistor in this application.
Note 11. Some versions use a 2.2Ω 1W resistor (Part #69-972) or a 2.7Ω 1W resistor (Part #6L-38) in this application.
Note 12. Not used in some versions.
† Items R68A, R68B, C60 are combined in one unit.

TRANSFORMER (FILAMENT)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	SEC. 3	REPLACEMENT DATA SILVERTONE Part No	Halldorson PART No	Merit PART No.	Thordorson PART No.	Tried PART No
T1	117VAC	6.3V	6.3V		60-318				
	⑨ .84A	⑨ .3A	⑨ 7.8A						

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA SILVERTONE PART No	Halldorson PART No	Merit PART No	RCA TYPE No	Ram PART No	Stancor PART No	Thordorson PART No	Tried PART No
T2	Vert. Osc. Trans.	80-328	B6702	A-3003	209T1 ②	V405	A-8125	25A03	A-97X
		80-317 ①	B6703 ②	A-3003 ②	209T1 ②	V405 ④	A-8125 ②	25A03 ②	A-97X ②
T3	Horiz. Output Trans.	80-326		HVO-404					
		80-381 ③		MWC-1 ④					
T4	Vert. Output Trans.	80-330	Z1806 ②	A-3039 ②	232T1 ②	V312 ②	A-8141 ②	28B54 ②	A-104X ②
T5A	Yoke(90°)Horiz.(19MH)	10-696D ③ ⑤	DF607 ②	MDF-93 ②	235D1 ②	Y90F10A3	DY-18A ⑤	Y-16 ⑤ ③	Y-41-1 ⑤
B	Vert. (40MH)	or	or	or	or	or	or	or	or
		10-696A ③ ⑤	DF607 ②	MDF-93 ②	235D1 ②	Y90F10A3 ③ ⑤	DY-18A ⑤	Y-16 ⑤ ③	Y-41-1 ⑤
T5A	Yoke(70°)Horiz.(24MH)	10-692 ③ ⑩	DF608 ②	MDF-75 ②	222D1 ②	Y70F25	DY-15A ⑤	Y-10 ⑤ ③	Y-19-1 ⑤
B	Vert.(36MH)	or	or	or	or	or	or	or	or
		10-699 ③ ⑩	DF608 ②	MDF-75 ②	222D1 ②	Y70F25 ③ ⑤	DY-15A ⑤	Y-10 ⑤ ③	Y-19-1 ⑤
		10-709 ③ ⑮							
		or							
		10-710 ③ ⑮							
		10-691 ③ ⑮							

① Used in Chassis 528. 29300.
② Drill new mounting hole(s).
③ Alternate Silvertone part number for 70° Chassis 528. 43500, 600, 700, 800. When this part number is used, Capacitor C78 should be 330MMF, 4KV, N1500; and Resistor R87 should be 2KΩ, 1W.
④ Includes Capacitor C79, Resistors R71, R72, and R89. Also includes plug (Silvertone Part No. 45-147) with 10-696 yoke only.
⑤ Make connections same as those shown on schematic for 10-696A yoke.
⑥ Use original horizontal yoke damping network if necessary.
⑦ Connect horizontal yoke damping network across terminals #3 and #7.
⑧ Use original rear cover and centering device.
⑨ Used in Chassis 528. 37300, 301, 600, 601, 39300, 43300, 301, 500, 501, 502, 43800, 44000.
⑩ Used in Chassis 528. 44901, 45001.
⑪ Used in Chassis 528. 39301, 302, 303, 304, 305, 501, 502, 503, 504, 505, 506, 42100, 101, 102, 400, 401, 402, 403, 43700, 800, 45900.
⑫ Used in Chassis 528. 38001, 002, 003, 38900, 901, 902, 43000, 001, 002, 301, 900, 43600, 500, 600.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordorson Replacement Connections	Tried Replacement Connections
4	4	4					
3	3	3					
2	2	2					
1	1	1					
A	Red Term. of MWC-1	Blue Term. of MWC-1					
G	Orange &Blk. Terms. of MWC-1 Across 2 & 1	Orange &Blk. Terms. of MWC-1					
Connect Width Coil Arrows							
Special Notes	⑫						

⑬ If AGC does not function properly, reverse width coil primary or secondary.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC	REPLACEMENT DATA SILVERTONE PART No	Halldorson PART No	Merit PART No.	Stancor PART No.	Thordorson PART No	Tried PART No	NOTES
T6	6.6KΩ	3-4Ω	80-319	Z1000 ①	A3036	A3678 ①	23547	S-6X	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS SIZE	FIELD	V. C. IMP	REPLACEMENT DATA SILVERTONE PART No.	QUAM PART No.	RCA TYPE No	NOTES
SP1	5"	PM	3-4Ω	79-435	5A07	203S3	The models covered in this folder use one, or a combination of, the listed speakers.
	4"	PM	3-4Ω	79-439	4A07	223S1	
	6"	PM	3-4Ω	79-455	4A07Z6.8		
	5"	PM	3-4Ω	79-430	5A07	205S2	
	6"	PM	3-4Ω	79-432	6A1	239S1	
	8"x 5"	PM	3-4Ω	79-454	8XA226.8		

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	UHF IF Coil	1.5Ω		19L-10				
L2	UHF IF Coil	0Ω		19S-13				
L3	VHF Ant. Matching Trans	0QCT	0Ω	5383-1				
L4	UHF IF Coil	0Ω		32S-18				
L5	Fld. Choke	0Ω		32L-8				
L6	Mod. Coil	0Ω		32L-7				
L7	VHF RF Coil	0Ω		30L-12				
L8	VHF RF Coils	0Ω	0Ω	5380-1				
L9	UHF IF Coils	0Ω	0Ω	5380-2				
L10	VHF Mixer Grid Coil	0Ω		32L-8				Channel 13
L11	Fil. Choke	0Ω		30L-9				
L12	VHF Osc. Coil	0Ω		5381-1				Channel 13
L13	VHF Osc. Coil	0Ω		5381-2				Channel 6
L14	RF Coil	0Ω		30L-1				
L15	Conv. Plate	.1Ω		5359-5				
L16	1st Video IF	.1Ω		19-5380				Includes 4L 28MC Trap-Note 1
L17	2nd Video IF	.1Ω	.1Ω	19-5377	17-3003	TV-12S	6233	Includes 4L 28MC Trap-Note 3
L18	3rd Video IF	.1Ω	.1Ω	19-5378	17-3004	TV-12S	6234	Note 4
L19	4th Video IF	.1Ω	.1Ω	19-5379	17-3004	TV-12S	6234	
L20	RF Coil	.1Ω		19-5377				. 6 Microhenries-Not used in some versions.
L21	Series Peaking Coil	9Ω		19-5376	19-3138		6183	130 Microhenries
L22	Shunt Peaking Coil	12Ω		19-5380	19-3350	TV-18S	6130	360 Microhenries-Note 5
L23A	4.5MC Trap	5.5Ω						
B	Sound IF	5.5Ω		19-5374				
L24	Series Peaking Coil	11Ω		19-5371	19-3250	TV-18S ⑧	6173	330 Microhenries; Wound on 22KΩ resistor
L25	Shunt Peaking Coil	10.5Ω		19-5369	19-3350	TV-18S	6154	230 Microhenries
L26	Ratio Det.	4.3Ω	1.7QCT	19-5380	17-3497	TV-11S	6305	Tertiary Windings. 8Ω-Note 2

Note 1. Alternate Part #10-8295, 10-8772 or 10-716.
Note 2. Alternate Part #10-716, T10-552, T10-715.
Note 3. Alternate Part #10-730, 10-784.
Note 4. Alternate Part #10-675.
Note 5. Alternate Part #10-782.
⑧ Parallel with 22K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordorson PART No	NOTES
L27	23Ω	58Ω	19-650	20-1402*	TV-162*	6182*	205R1 *	H-100 *	H3-3 *	Waveform Winding-45Ω

* Reverse coil mounting in can.

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA SILVERTONE PART No.	FEDERAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.350A	83-429	1090A	MR300	8Q4	300	
M2	.200A	83-429	1090A	MR300	8Q4	300	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA SILVERTONE PART No.	SYLVANIA PART No.	NOTES
M3	D650 *	48-99	1N58 or 1N62A	UHF Mixer (Clip in). Used in Chassis 528. 43300, 528. 42300, 528. 44801, 528. 45001, 528. 42400, 528. 42500, 528. 42403, 528. 43601, 528. 42301, 528. 43000, 528. 43103, 528. 42301, 528. 39300, 528. 39302, 528. 35003, 528. 35304, 528. 35303, 528. 38001, 528. 35303, 528. 35301, 528. 38900, 528. 37900, 528. 38305, 528. 37901, 528. 35905, 528. 37301, 528. 35003, 528. 35805, 528. 35604, 528. 35602, 528. 35901, 528. 36001, 528. 35603, 528. 37300

* Some versions may use crystal diode type 1N82A in this application.

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M4	Dial Light	89-7	#47, Not used in some versions.
M5	Tuner	95-83	VHF-UHF Combination; Consists of VHF section part No. 95-48, and UHF section part No. 95-85. Chassis 528. 43100, 528. 43101, 528. 42103, 528. 42103, 528. 42300, 528. 42301, and [illegible]
	Tuner	95-44	VHF-UHF Combination; Consists of VHF section part No. 95-45, and UHF section part No. 95-46. Chassis 528. 35002, 528. 35001, 528. 35602, 528. 35903, 528. 35604, 528. 35605, 528. 35606, 528. 35700, 528. 37301, and 528. 39300
	Tuner	95-50	VHF-UHF Combination; Consists of VHF section part No. 95-51, and UHF section part No. 95-46. Chassis 528. 35301, 528. 35302, 528. 35304, 528. 35305, 528. 37900, 528. 37901 and [illegible]
	Tuner	95-57	VHF-UHF Combination; Consists of VHF section part No. 95-51, and UHF section part No. 95-58. Chassis 528. 35003
	Tuner	95-58	VHF-UHF Combination; Consists of VHF section part No. 95-53, and UHF section part No. 95-58. Chassis 528. 38303, 528. 37901, 528. 38901, 528. 38902.
	Tuner	95-64	VHF-UHF Combination; Consists of VHF section part No. 95-48, and UHF section part No. 95-66. Chassis 528. 43400, 528. 42402, 528. 42403, 528. 42404, 528. 42500, 528. 42501, 528. 43502, 528. 42503, 528. 45301, 528. 45600 and 528. 45601.

SPEAKER

ITEM No.	RATINGS SIZE	FIELD	V. C. IMP	REPLACEMENT DATA SILVERTONE PART No.	QUAM PART No.	RCA TYPE No	NOTES
SP1	5"	PM	3-4Ω	79-435	5A07	203S3	The models covered in this folder use one, or a combination of, the listed speakers.
	4"	PM	3-4Ω	79-439	4A07	223S1	
	6"	PM	3-4Ω	79-455	4A07Z6.8		
	5"	PM	3-4Ω	79-430	5A07	205S2	
	6"	PM	3-4Ω	79-432	6A1	239S1	
	8"x 5"	PM	3-4Ω	79-454	8XA226.8		

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	UHF IF Coil	1.5Ω		19L-10				
L2	UHF IF Coil	0Ω		19S-13				
L3	VHF Ant. Matching Trans	0QCT	0Ω	5383-1				
L4	UHF IF Coil	0Ω		32S-18				
L5	Fld. Choke	0Ω		32L-8				
L6	Mod. Coil	0Ω		32L-7				
L7	VHF RF Coil	0Ω		30L-12				
L8	VHF RF Coils	0Ω	0Ω	5380-1				
L9	UHF IF Coils	0Ω	0Ω	5380-2				
L10	VHF Mixer Grid Coil	0Ω		32L-8				Channel 13
L11	Fil. Choke	0Ω		30L-9				
L12	VHF Osc. Coil	0Ω		5381-1				Channel 13
L13	VHF Osc. Coil	0Ω		5381-2				Channel 6
L14	RF Coil	0Ω		30L-1				
L15	Conv. Plate	.1Ω		5359-5				
L16	1st Video IF	.1Ω		19-5380				Includes 4L 28MC Trap-Note 1
L17	2nd Video IF	.1Ω	.1Ω	19-5377	17-3003	TV-12S	6233	Includes 4L 28MC Trap-Note 3
L18	3rd Video IF	.1Ω	.1Ω	19-5378	17-3004	TV-12S	6234	Note 4
L19	4th Video IF	.1Ω	.1Ω	19-5379	17-3004	TV-12S	6234	
L20	RF Coil	.1Ω		19-5377				. 6 Microhenries-Not used in some versions.
L21	Series Peaking Coil	9Ω		19-5376	19-3138		6183	130 Microhenries
L22	Shunt Peaking Coil	12Ω		19-5380	19-3350	TV-18S	6130	360 Microhenries-Note 5
L23A	4.5MC Trap	5.5Ω						
B	Sound IF	5.5Ω		19-5374				
L24	Series Peaking Coil	11Ω		19-5371	19-3250	TV-18S ⑧	6173	330 Microhenries; Wound on 22KΩ resistor
L25	Shunt Peaking Coil	10.5Ω		19-5369	19-3350	TV-18S	6154	230 Microhenries
L26	Ratio Det.	4.3Ω	1.7QCT	19-5380	17-3497	TV-11S	6305	Tertiary Windings. 8Ω-Note 2

Note 1. Alternate Part #10-8295, 10-8772 or 10-716.
Note 2. Alternate Part #10-716, T10-552, T10-715.
Note 3. Alternate Part #10-730, 10-784.
Note 4. Alternate Part #10-675.
Note 5. Alternate Part #10-782.
⑧ Parallel with 22K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordorson PART No	NOTES
L27	23Ω	58Ω	19-650	20-1402*	TV-162*	6182*	205R1 *	H-100 *	H3-3 *	Waveform Winding-45Ω

* Reverse coil mounting in can.

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA SILVERTONE PART No.	FEDERAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.350A	83-429	1090A	MR300	8Q4	300	
M2	.200A	83-429	1090A	MR300	8Q4	300	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA SILVERTONE PART No.	SYLVANIA PART No.	NOTES
M3	D650 *	48-99	1N58 or 1N62A	UHF Mixer (Clip in). Used in Chassis 528. 43300, 528. 42300, 528. 44801, 528. 45001, 528. 42400, 528. 42500, 528. 42403, 528. 43601, 528. 42301, 528. 43000, 528. 43103, 528. 42301, 528. 39300, 528. 39302, 528. 35003, 528. 35304, 528. 35303, 528. 38001, 528. 35303, 528. 35301, 528. 38900, 528. 37900, 528. 38305, 528. 37901, 528. 35905, 528. 37301, 528. 35003, 528. 35805, 528. 35604, 528. 35602, 528. 35901, 528. 36001, 528. 35603, 528. 37300

* Some versions may use crystal diode type 1N82A in this application.

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M4	Dial Light	89-7	#47, Not used in some versions.
M5	Tuner	95-83	VHF-UHF Combination; Consists of VHF section part No. 95-48, and UHF section part No. 95-85. Chassis 528. 43100, 528. 43101, 528. 42103, 528. 42103, 528. 42300, 528. 42301, and [illegible]
	Tuner	95-44	VHF-UHF Combination; Consists of VHF section part No. 95-45, and UHF section part No. 95-46. Chassis 528. 35002, 528. 35001, 528. 35602, 528. 35903, 528. 35604, 528. 35605, 528. 35606, 528. 35700, 528. 37301, and 528. 39300
	Tuner	95-50	VHF-UHF Combination; Consists of VHF section part No. 95-51, and UHF section part No. 95-46. Chassis 528. 35301, 528. 35302, 528. 35304, 528. 35305, 528. 37900, 528. 37901 and [illegible]
	Tuner	95-57	VHF-UHF Combination; Consists of VHF section part No. 95-51, and UHF section part No. 95-58. Chassis 528. 35003
	Tuner	95-58	VHF-UHF Combination; Consists of VHF section part No. 95-53, and UHF section part No. 95-58. Chassis 528. 38303, 528. 37901, 528. 38901, 528. 38902.
	Tuner	95-64	VHF-UHF Combination; Consists of VHF section part No. 95-48, and UHF section part No. 95-66. Chassis 528. 43400, 528. 42402, 528. 42403, 528. 42404, 528. 42500, 528. 42501, 528. 43502, 528. 42503, 528. 45301, 528. 45600 and 528. 45601.

SILVERTONE MODELS 5141, 5171, 6100, 6101, 6104, 6107, 6108, 6109, 6110, 6111, 6112, 6113, 6114, 6115, 6116, 6117, 6120, 6121, 6126, 6127, 6128, 6129, 6130, 6131, 6160, 6161, 6162, 6163, 6165, 6166, 6167, 6171, 6172, 6173, 6174, 6175, 6184, 6185, 6190, 6191, 6192, A

PROPERTY OF F. J. SMITH DENVER COLORADO

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C55	5000		15-320	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C56	5000		15-320	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C57	5000	1000	15-305	HVD-15-4700	DD-502	VD47	1R5KV-472		10GA-D5	
C58	.022	400	16-248	BPD-02	DF-203	CUB4S22	817-02	PT4122	4TM-S22	
C59	150		15-295	N750-DI150	TCN-150	N046	N750-337-151		5TCU-T15	
C60	12000		†17-109	†PA-501	†PC-104				†103C12	
C61	.0047	400	16-233	1464-0047		1R5D47			MS-247	
C62	.1	600	16-208	P688N-1	DF-104	CUB6P1		PT601	6TM-P1	
C63	5000		15-320	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	Note 7
C64	.047	400	16-447	BPD-05	DF-502	CUB4S47		PT4147	4TM-S47	
C65	.022	200	16-263	BPD-02	DF-203	CUB4S22	817-02	PT4122	4TM-S22	Note 8
C66	180	500	15-300	NP0-SI180	TCZ-180	22R5T18	811-181		MS-318	
C67	2000		15-228	BPD-002	DD-202	K072	801-002	DC-522	5HK-D2	
C68	.047	400	16-245	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C69	.022	200	16-263	BPD-02	DF-203	CUB4S22	817-02	PT4122	2TM-S22	
C70	.22	200	16-253	P288N-22		CUB2P22		PT4022	2TM-P22	
C71	390	500	15-273		D6-391	5R5T39	811-391		MS-339	
C72	.01	600	16-262							
C73	1000	500	15-288	1464-001		1R5D1	811-102	MCB255	MS-21	
C74	.0047	600	16-233	1464-0047		1R5D47			MS-247	
C75	47		15-265	NP0-DI47	TCZ-47	Z033	NP0-338-470	ZT-5447	5TCC-Q47	
C76	100		15-292		TCL-100					
C77	.047	400	16-245	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C78	91	4000	15-326							Notes 7, 9
C79	68	3000		HVD-30-68	DD30-680	V3Q68	3KV-680	DC30468	30GA-Q68	Note 10
C80	5000	1000	15-305	HVD-15-4700	DD-502	VD47	1R5KV-472		10GA-D5	Note 8
C81	500	1000		HVD-15-470	DD-501	VT47	1R5KV-471	DC30347	10GA-T5	Note 11
C82	1000		15-247	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	Note 7
C83	1000		15-247	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	Note 7

† Items C60, R68A and R68B are combined in one unit.
Note 3. Used only in models with UHF tuner.
Note 4. Some versions may use a dual 1000MMF unit (part #15-286) in place of C39 and C41.
Note 5. Some versions may use a 560MMF unit (part #15-303) in this application.
Note 6. Some versions may use a 330MMF unit (part #15-329) in this application.
Note 7. Not used in some versions.
Note 8. Some versions may use .047MFD unit (part #16-266) in this application.
Note 9. Some versions may use 27MMF unit (part #15-315) in this application.
Other versions may use 39MMF unit (part #15-356) in this application.
Note 10. Some versions may use 56MMF unit in this application.
Note 11. Some versions may use 5000MMF unit (part #15-305) in this application.
Note 12. Some versions may use 1000MMF unit (part #15-247) in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	A24-221	BSK-60-S	A47-500K-Z	Q13-133	U-48	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A.
C	Switch		Not Req.	Not Req.	SWE-12	76-1	US-26	Attach to R1A.
R2A	200Ω	½	A25-41	AB-2	A47-500-S	Q11-201	U-2	Contrast
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R2A.
R3A	3Meg with 800K stop	½	A25-50D	† AB-83	†A47-2.5Meg-S	† Q11-239	† U-255	Vert. Hold
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R3A.
R4A	50K	½	A25-42	AB-31	A47-50K-S	Q11-123	U-35	Horiz. Hold
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R4A.
R5A	100K	½	A25-40	AB-40	A47-100K-S	Q11-128	TA15L	Brightness
B	Shaft		Not Req.	AK-1	FKS-½	RQ	Not Req.	Attach to R5A.
R6A	5Meg with 1Meg stop	½	A25-43	♦ AB-86	♦A47-4Meg-S	♦ Q11-141	♦ TA56L	Height
B	Shaft		Not Req.	AK-1	FKS-½	RQ	Not Req.	Attach to R6A.
R7A	5000Ω with 1000Ω stop	½	A25-53	# AB-9	#A47-4000-S	# Q11-114	# PTA352L	Vert. Linearity
B	Shaft		Not Req.	AK-19	KSS-3	Not Req.	Not Req.	Attach to R7A.
R8A	4Meg	½	A25-58	AB-86	A47-4Meg-S	Q11-141	PTA56L	AGC-Note
B	Shaft		Not Req.	AK-19	RN-3	Not Req.	Not Req.	Attach to R8A.

Note . Not used in some versions.
† Connect an 820K resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).
♦ Connect a 1Meg resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).
Connect a 1000Ω resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	SILVERTONE PART No.	IRC PART No.	NOTES
R9	470K		604740M	BTS-470K	
R10	470K		604740M	BTS-470K	
R11	6800Ω		106-682	BTS-6800	
R12	1000Ω		106-102	BTS-1000	
R13	150Ω		106-151	BTS-150	
R14	150K		106-154	BTS-150K	
R15	220K		106-224	BTS-220K	
R16	5600Ω		106-562	BTS-5600	
R17	750K		106-754	BTS-750K 5%	
R18	1Meg		106-105	BTS-1Meg	
R19	15K		106-153		
R20	3900Ω	1	107-392	BTA-3900	
R21	22K		106-223		
R22	470K		106-474	BTS-470K	
R23	6800Ω		106-682	BTS-6800	
R24	4700Ω		106-472	BTS-4700	
R25	120K		106-124	BTS-120K	
R26	470K		604740K	BTS-470K	
R27	220K		602240K	BTS-220K	
R28	39K		603930K	BTS-39K	
R29	5600Ω		605620K		
R30	150Ω		601510M	BTS-150	Note 1
R31	39Ω		603900K	BTS-39	Note 2
R32	1000Ω		601020M	BTS-1000	
R33	18K		601830K		
R34	150Ω		601510M	BTS-150	Note 1
R35	56Ω		605600K	BTS-56	Note 2
R36	56K		605630K		
R37	12K		601230K		Note 11
R38	1000Ω		601020M	BTS-1000	
R39	220Ω		602210K	BTS-220	

ITEM No.	RATING OHMS	RATING WATT	SILVERTONE PART No.	IRC PART No.	NOTES
R40	4700Ω		604720K	BTS-4700	
R41	18Ω		601800K	BTS-18	
R42	6800Ω	2	606822K	BTB-6800	
R43	6800Ω	2	606822K	BTA-6800	
R44	1200Ω	1	601221K	BTA-1200	
R45	220K		602240K	BTS-220K	Note 3
R46	22K			BTS-22K	Note 4
R47	6800Ω			BTS-6800	Note 4
R48	47K	1	604730K	BTA-47K	
R49	22K	2	602232K	BTB-22K	
R50	2200Ω		602220K	BTS-2200	
R51	560Ω		605610K	BTS-560	
R52	220Ω		602210K	BTS-220	Note 1
R53	22KΩ		602230M	BTS-22K	
R54	18K		601830K	BTS-18K	Note 5
R55	2.2Meg		602250M	BTS-2.2Meg	Note 6
R56	4.7Meg		604750M	BTS-4.7Meg	
R57	270K		602740K	BTS-270K	
R58	470K		604740M	BTS-470K	
R59	330Ω	1	603311K	BTA-330	
R60	1000Ω	2	601022M	BTB-1000	
R61	15K		601530M	BTS-15K	
R62	270K		602740K	BTS-270K	
R63	2.2Meg		602250K	BTS-2.2Meg	
R64	680K		606840K	BTS-680K	
R65	1800Ω		601820K	BTS-1800	
R66	2200Ω		602220K	BTS-2200	
R67	4700Ω		604720K	BTS-4700	
R68A B	38.4K		† 17-109		
R69	1Meg		601050M	BTS-1Meg	

PARTS LIST AND DE
RESI

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SILVERTONE PART No.	REPLACEMENT DATA IRC PART No.	NOTE
R70	2.2Meg		602250M	BTS-2.2Meg	
R71	560Ω				
R72	560Ω				
R73	68K	1	606831K	BTA-68K	
R74	120K	1	601241K	BTA-120K	
R75	820K		608240K		
R76	2.7Meg	1	602751K		
R77	150K	1	601541K		
R78	8200Ω		608220K		
R79	100K	1	601041K		
R80	150K	1	601541K		
R81	8200Ω		608220K		
R82	39K	1	603931K		Note

Note 1. Some versions use a 330Ω ½W resistor in thi
Note 2. Some versions use a 47Ω ½W resistor in thi
Note 3. Some versions use a 270KΩ ½W resistor in
Note 4. Some versions use a 4700Ω ½W resistor in t
Note 5. Some versions use a 12KΩ ½W resistor in th
Note 6. Some versions use a 3.3Meg 5% ½W resisto
in this application.
Note 7. Some versions use a 33KΩ 1W resistor in th
Note 8. Some versions use a 10KΩ 2W resistor in th
Note 9. Some versions use a 39Ω 1W resistor (Part
Note 10. Some versions use an 820Ω ½W resistor in
Note 11. Some versions use a 2.2Ω ½W resistor (Par
application.
Note 12. Not used in some versions.
† Items R68A, R68B, C60 are combined in one unit.

TRANSFORI

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	SILVERTO PART N
T1	117VAC ⓖ.54A	6.3V ⓖ.3A	6.3V ⓖ7.8A		80-318

TRANSFORMERS

ITEM No.	USE	SILVERTONE PART No.	Halldorson PART No.	M PAR
T2	Vert. Osc. Trans.	80-328	B6702	A-3
		80-317 ①	B6702 ②	A-3
T3	Horiz. Output Trans.	80-326		HVC
		80-361 ③		MW
T4	Vert. Output Trans.	80-325	Z1806 ②	A-3
T5A	Yoke(90°)Horiz.(19MH)	10-698D④ ⑨	DF607 ⑤	MDI
B	Vert. (40MH)	or	⑥	
		10-698A ④ ⑨	DF607 ⑤	MDI
			⑥	
T5A	Yoke(70°)Horiz.(24MH)	10-692 ④ ⑩	DF608 ⑥	MDI
B	Vert. (36MH)	or	⑦ ⑧	
		10-699 ④ ⑩	DF608 ⑥	MDI
		10-709 ④ ⑪	⑦ ⑧	
		or		
		10-710 ④ ⑪		
		10-691 ④ ⑫		

① Used in Chassis 528. 39300.
② Drill new mounting hole(s).
③ Alternate Silvertone part number for 70° Chassis 528. should be 39MMF, 4KV, N1500; and Resistor R87 should
④ Includes Capacitor C79, Resistors R71, R72, and R89.
⑤ Make connections same as those shown on schematic for
⑥ Use original horizontal yoke damping network if necessa
⑦ Connect horizontal yoke damping network across termin
⑧ Use original rear cover and centering device.
⑨ Used in Chassis 528. 37300, 301, 900, 901, 39300, 42200
⑩ Used in Chassis 528. 44901, 45001.
⑪ Used in Chassis 528. 35301, 302, 303, 304, 305, 601, 60 45900.
⑫ Used in Chassis 528. 35001, 002, 003, 38900, 901, 902,

*HORIZONTAL OUTPUT T

Use Original Width Coi

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Rep Cor
	4		4	
	3		3	
	2		2	
	1		1	
	A		Red Term. of MWC-1	
	G		Blue Term. of MWC-1	
Connect Width Coil Across →			Orange &Blk. Terms. of MWC-1 Across 2 & 1	
Special Notes →			⑬	

⑬ If AGC does not function properly, reverse width

TRANSFORMER

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMEN SILVERTONE PART No.	Halldorson PART No.	Merit PART No.
T6	5.8KΩ	3-4Ω	80-319	Z1000 ①	A3026

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	UHF Oscillator	6AF4A	
V2	RF Amplifier	6BK7A	
V3	Mixer-Oscillator	6U8	
V4	1st. Video IF Amplifier	6CB6	
V5	2nd. Video IF Amplifier	6CB6	
V6	3rd. Video IF Amplifier-Video Detector	6AM8	
V7	Video Output-Sync Sep.	6AW8	Note 1
V8	AGC Keying	6AU6	

ITEM No.	USE	TYPE	NOTES
V9	Sound IF Amp.-Sync Amp.	6U8	
V10	Ratio Det.-AF Amp.-AGC Clamper	6T8	
V11	Audio Output	6K6GT	
V12	Vert.Osc.-Vert. Output	12BH7	
V13	Horiz. AFC-Horiz.Osc.	6SN7GT	
V14	Horiz. Output	6AV5GT	
V15	Damper	6AX4GT	
V16	HV Rectifier	1B3GT	

Note 1. 6BH8 may be used in some versions.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	SILVERTONE PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V17	24YP4 ① 21AVP4 21AVP4A ①	24YP4 ① 21AVP4 21AVP4A ①	24YP4 ① 21AVP4A ① 21AVP4A/B ①	24YP4 ② 21AVP4A/B ②	① Aluminized ② Silver screen "85"
	17HP4B ①	17HP4B ① 17HP4/ 17RP4	17HP4B ① 17HP4/17RP4	17HP4B ② 17HP4/ 17RP4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	150	150	18-323	AFHS1-70	XA004	FP117	TMS-25	T-050	TVL-1428
C2A	■150	150	18-372	E3B387	XA004	FP117	TMS-25	T-050	TVL-1428
B	▲100	50	(Note 1)		BRH501	TC3501	TD-100-50	MTH-5010	TVA-1310
C3A	▬100	300	18-346 (Note 2)	AFH4-02-60		FP447		D-177	TVL-4634
B	▲20	300				TC68		MTD-3520	TVA-1608
C	20	300							
D	■40	300	(Note 2)						
C4	4	50	18-339	SRE50V5	BR550	TC30	TD-4-50	MMT-0505	TVA-1303
C5	20	300	18-334	PRS450V20	BR2035	TC65	TD-20-350	FM-4520	TVA-1608

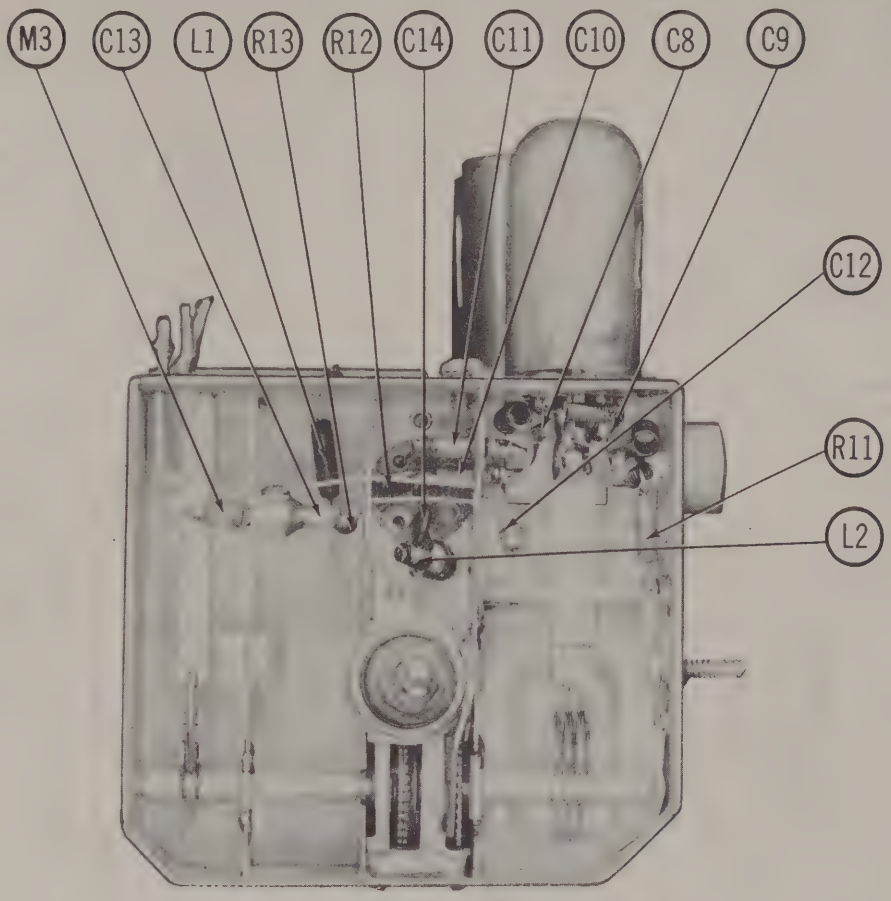
Note 1. In some versions C2B is 50MFD (C2 part #18-322).
Note 2. In some versions C3A is 200MFD and 3C3D is 20MFD (C3 part #18-330).
In some versions C3D is 20MFD (C3 part #18-333).

FIXED CAPACITORS

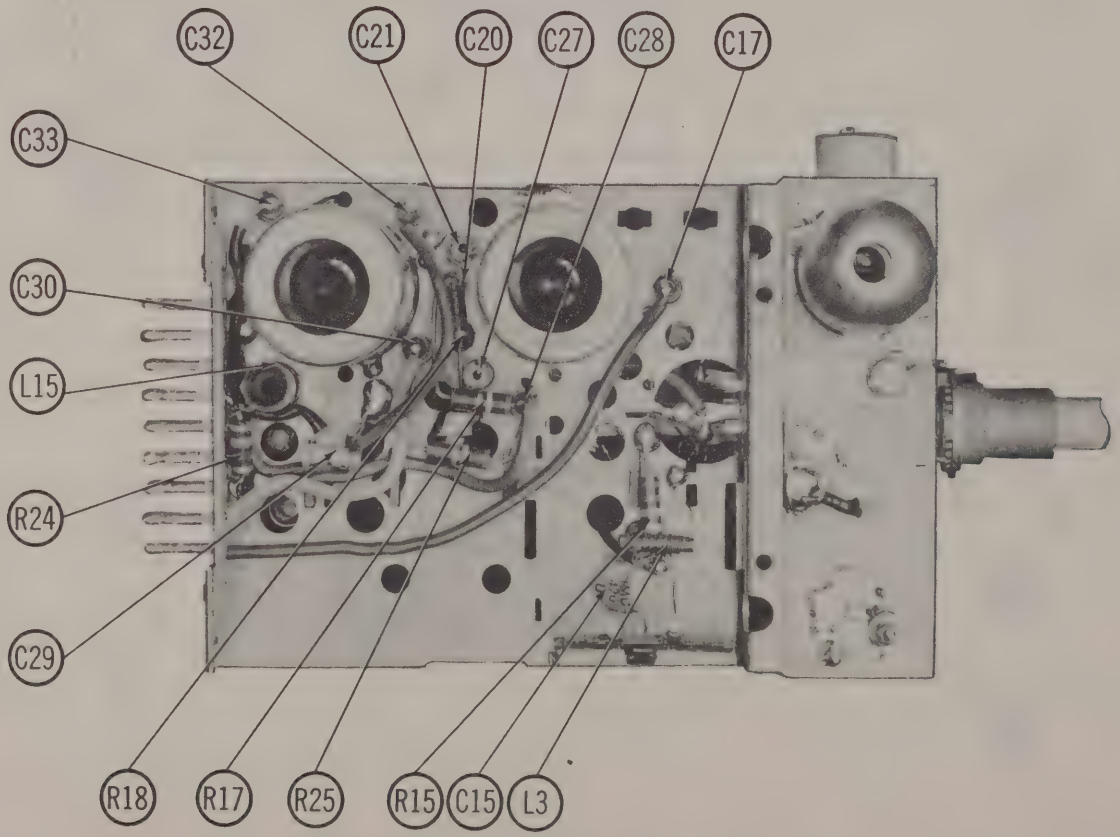
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	500	1000	15-304	HVD-15-470	DD-501	VT47	1R5KV-471	DC30347	10GA-T5	
C7	500	1000	15-304	HVD-15-470	DD-501	VT47	1R5KV-471	DC30347	10GA-T5	
C8	170		138-3							
C9	170		138-3							
C10	1000		206-102	EF-001	MFT-1000				503C-D1	
C11	1000		206-102	EF-001	MFT-1000				503C-D1	
C12	.91		2101-918							
C13	3.5		5219-501							
C14	15		221-150	N750-DI15	TCN-15	N021	N750K-150		5TCU-Q15	
C15	470	1000	230-471	HVD-15-470	DD-471	VT47	1R5KV-471	DC30347	10GA-T47	
C16	10		160-100	N750-SI10	TCN-10	N018	N750A-100	NT-541	5TCU-Q1	
C17	1000		244-1							
C18	2.7		2101-279							
C19	18		221-180		TCN-18	N022	N750K-180			
C20	1000		244-1							
C21	1000		244-1							
C22	15		222-150	NP0-DI15	TCZ-15	Z021	N750K-150		5TCC-Q15	
C23	15		222-150	NP0-DI15	TCZ-15	Z021	N750K-150		5TCC-Q15	
C24	1.2		2101-129							
C25	1.5		170-159							
C26	10		227-100							
C27	1000		244-1							
C28	1000		244-1							
C29	62		159-620		TCN-62		N750K-620			
C30	1000		244-1							
C31	1000		244-1							
C32	1000		244-1							
C33	1000		244-1							
C34	1000		15-247	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	Note 7
C35	5000		15-320	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	Note 12
C36	.22	200	16-253	P288N-22		CUB2P22			2TM-P22	
C37	.47	200	16-240	P288N-47		CUB2P47			2TM-P47	
C38	100		15-292		TCL-100					Note 3
C39	5000		15-320	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	Note 4
C40	560		15-303	DI-00056	DD-561	G063	811-561	UC-5356	5GA-T56	
C41	1000		15-247	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	Note 4
C42A	1000		15-286	BPD-2X001	DD2-102	DK069	812-001	DCD-521	5HK-2D1	
B	1000									
C43	1000		15-247	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	Note 5
C44	680		15-290	DI-00068	DD-681	K065	811-681	UC-5368	UC-5368	
C45A	1000		15-286	BPD-2X001	DD2-102	DK069	812-001	DCD-521	5HK-2D1	
B	1000									
C46	10		15-324	NP0-DI10	DD-100	Z018	831-100	ZT-541	5TCC-Q1	
C47	33									
C48	.047	400	16-245	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C49	.1	400	16-264	P488N-1	DF-104	CUB4P1		PT401	4TM-P1	
C50	.047	400	16-245	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C51	33									
C52A	5000		15-294	BPD-2X0047	DD2-502	DK079	811-005	DC-525	5HK-2D47	
B	5000						811-005	DC-525		
C53	560		15-303	DI-00056	D6-561	G063	811-561	UC-5356	5GA-T56	Note 6
C54A	5000		15-294	BPD-2X0047	DD2-502	DK079	811-005	DC-525	5HK-2D47	
B	5000						811-005	DC-525		

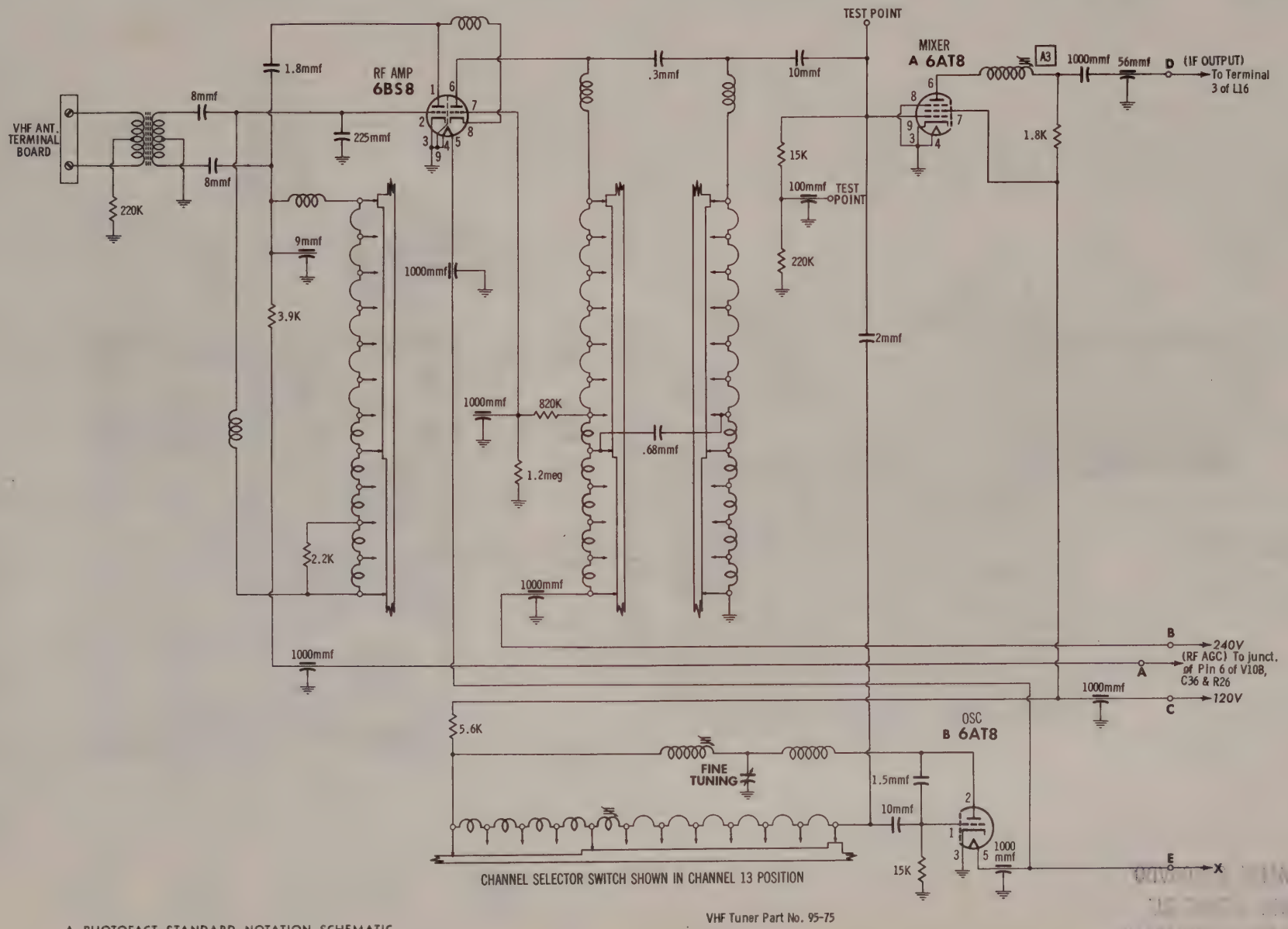
PROPERTY OF
L. F. [illegible] KENSHIP
3924 M[illegible]DE ST.
DENVER, COLORADO



UHF TUNER FRONT VIEW



RF TUNER TOP VIEW

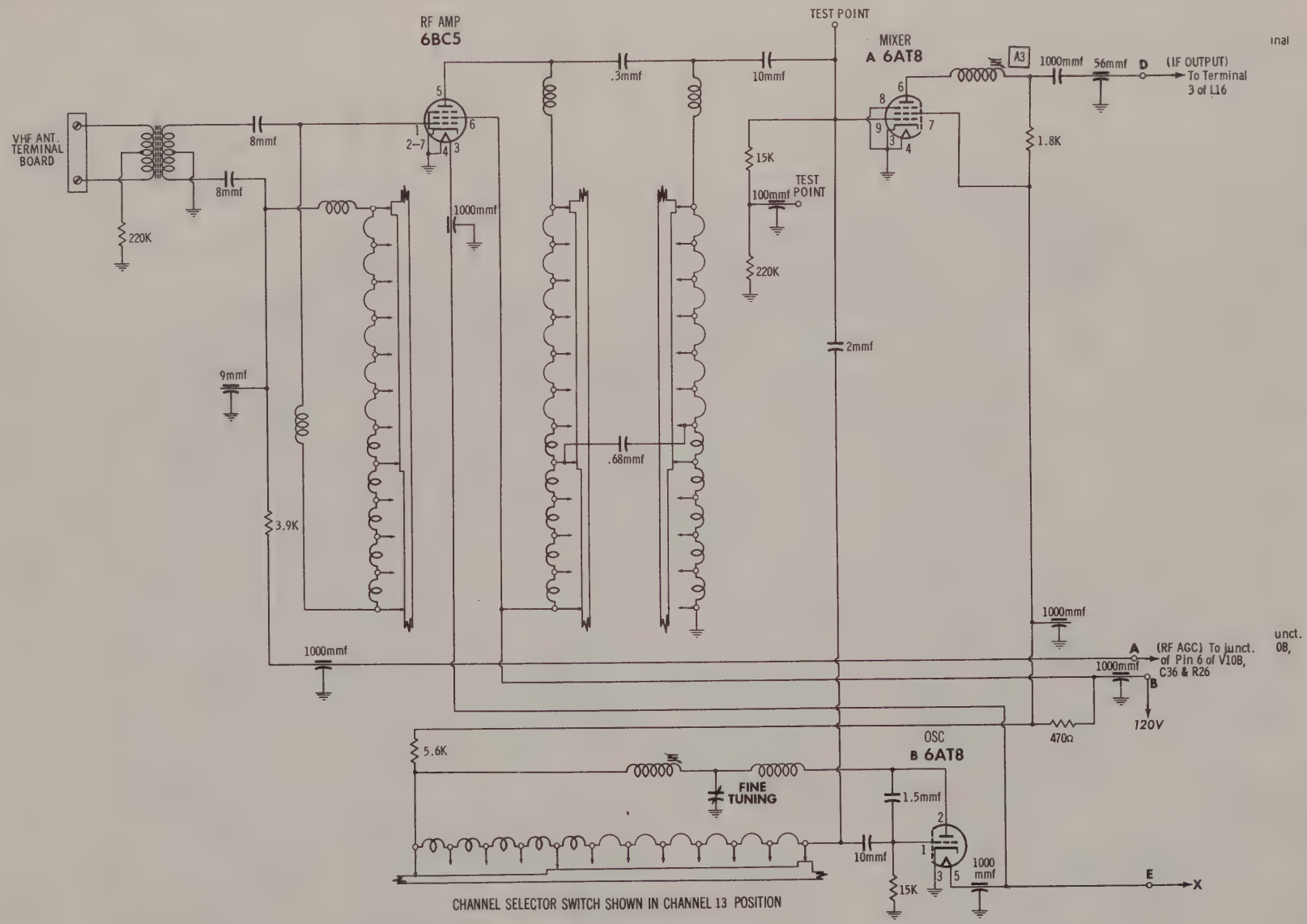


A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1956

ALTERNATE VHF TUNER SCHEMATIC

SILVERTONE MODELS 5161, 5171, 6100, 6101, 6106, 6107, 6108, 6109, 6110, 6111, 6112, 6113, 6114, 6115, Y, 6116, 6117, 6120, 6121, 6126, 6127, 6128, 6129, A, 6130, 6131, A, 6160, 6164, 6165, 6166, 6167, 6171, 6172, 6173, 6174, 6176, 6184, 6186, 6190, 6191, 6192, A



A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1956

ALTERNATE VHF TUNER SCHEMATIC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use an isolation transformer to protect the test equipment.
The high voltage lead should be securely taped away from the chassis. Do not remove the horizontal oscillator tube (V13) to disable the high voltage.

VIDEO IF ALIGNMENT

Connect the negative lead of a 4.5 volt bias supply to point (E). Connect the positive lead to chassis. Turn adjustments A2, A5, A6 and A7 maximum counter clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over converter tube. Low side to chassis.	44.25MC (Unmod.)	Any non-interfering channel	DC probe to point (A). Common to chassis.	A1	Attenuate generator output to maintain not more than -2.5 volts on VTVM. Adjust for maximum deflection.
2.	"	"	44.25MC	"	"	A2, A3	"
3.	"	"	43.2MC	"	"	A4	"
4.	"	"	45.3MC	"	"	A5	"
5.	"	"	47.25MC	"	"	A6	Increase generator output. Adjust for MINIMUM deflection.
6.	"	"	41.25MC	"	"	A7	"

OVERALL VIDEO IF RESPONSE CHECK

Attenuate sweep generator output to maintain 2 volts peak to peak on scope (-.3 volts on VTVM at point (A)). If a separate marker generator is used, couple it loosely to sweep generator output cable near the ungrounded converter tube shield.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Direct	High side to ungrounded tube shield floating over converter tube. Low side to chassis.	44.25MC (10MC Swp.)	41.25MC 42.75MC 43.8MC 44.25MC 45MC 45.75MC 47.25MC	Any non-interfering channel	Vert. amp. thru 10K to point A. Low side to chassis.		Check for response curve similar to Fig. 1. If necessary, retouch A1 thru A5 to obtain desired response. To view 41.25MC and 47.25MC traps increase generator output and use high scope gain. If necessary, retouch A6 and A7 to place 47.25MC and 41.25MC markers in center of trap notch as in Fig. 1.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from point (B) to chassis. The junction of these two resistors is alignment point (D) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.001MFD	High side to point (A). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to point (B). Common to chassis.	A8, A9, A10	Adjust for maximum deflection.
9.	"	"	"	"	DC probe to point (C). Common to point (D).	All	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.001MFD	High side to point (A). Low side to chassis.	4.5MC (450KC Swp.)	4.5MC	Any	Vert. amp. to point (B). Low side to chassis.	A8, A9, A10	Disconnect stabilizing capacitor (C4). Adjust for curve of maximum amplitude and symmetry similar to Fig. 2.
9.	"	"	"	"	"	Vert. amp. to point (C). Low side to chassis.	All	Reconnect C4. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 3. SLIGHTLY retouch A10 for maximum amplitude and straightness of crossover lines.

TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

4.5MC TRAP ALIGNMENT

Tune in a local TV station and inspect the picture for evidence of 4.5MC beat interference. If necessary, adjust A8 until the horizontal scanning lines are smooth and continuous.

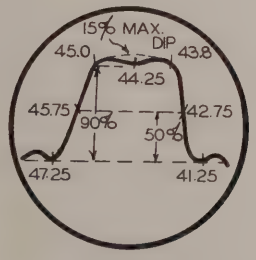


FIG. 1

FIG. 2

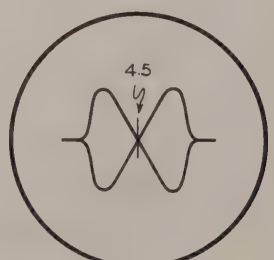
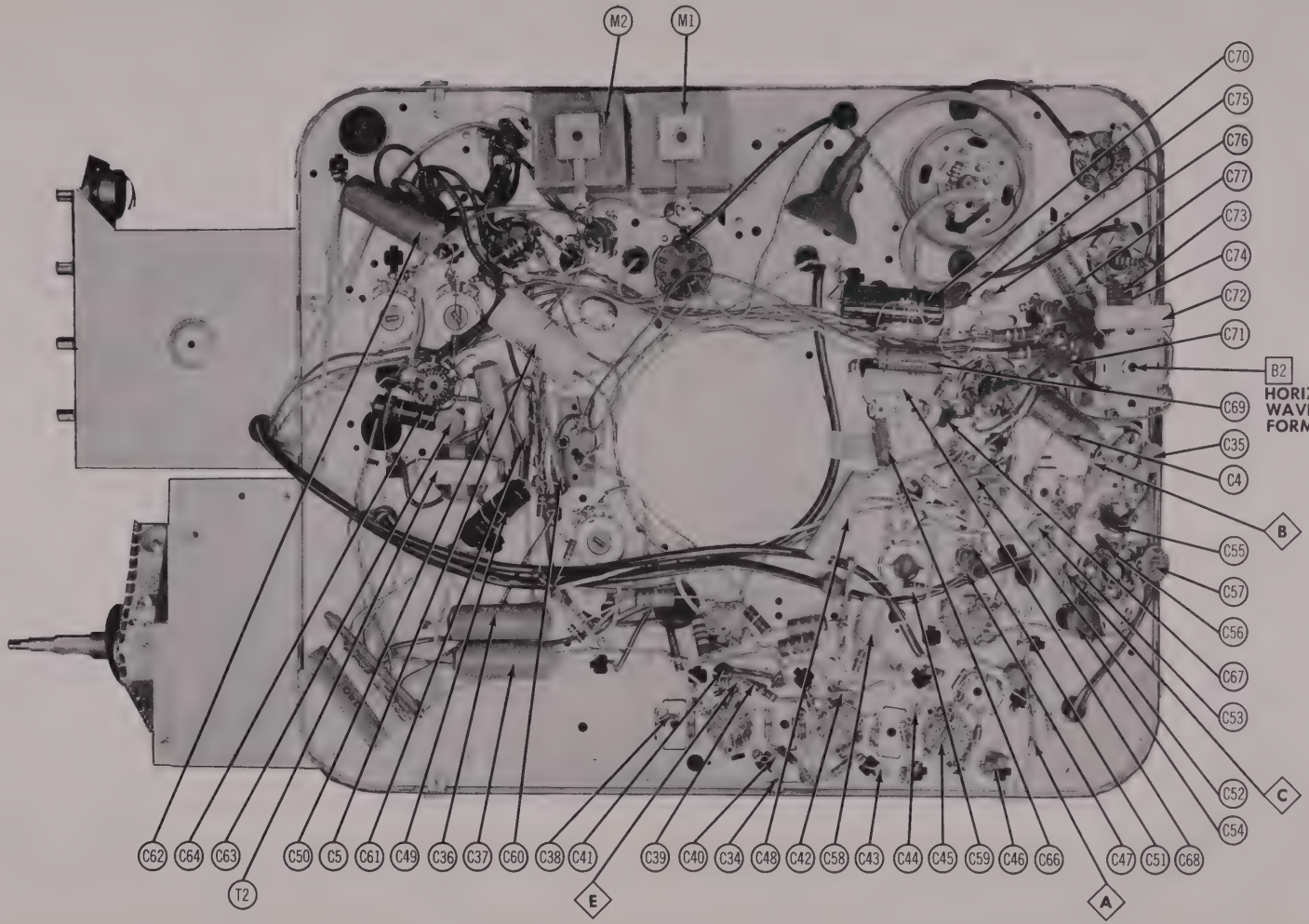


FIG. 3

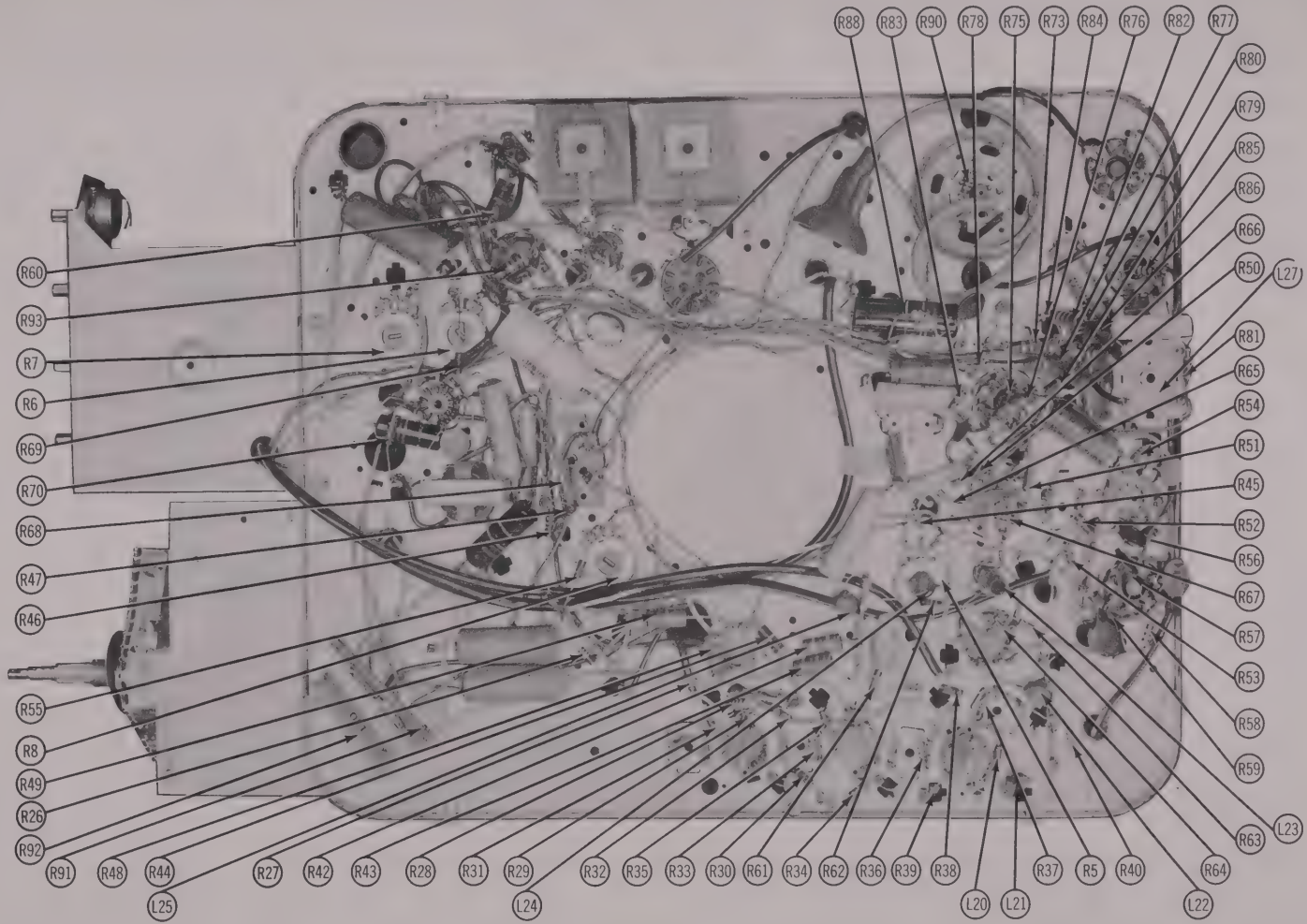
SILVERTONE MODELS 5161, 5171, 6100, 6101, 6106, 6107, 6108, 6109, 6110, 6111, 6112, 6113, 6114, 6115, Y, 6116, 6117, 6120, 6121, 6126, 6127, 6128, 6129, A, 6130, 6131, A, 6160, 6164, 6165, 6166, 6167, 6171, 6172, 6173, 6174, 6176, 6184, 6186, 6190, 6191, 6192, A



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

SILVERTONE MODELS 5161, 5171, 6100, 6101, 6106, 6107, 6108, 6109, 6110, 6111, 6112, 6113, 6114, 6115, Y, 6116, 6117, 6120, 6121, 6126, 6127, 6128, 6129, A, 6130, 6131, A, 6160, 6164, 6165, 6166, 6167, 6171, 6172, 6173, 6174, 6176, 6184, 6186, 6190, 6191, 6192, A

SET 330 FOLDER 10



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PROPERTY OF

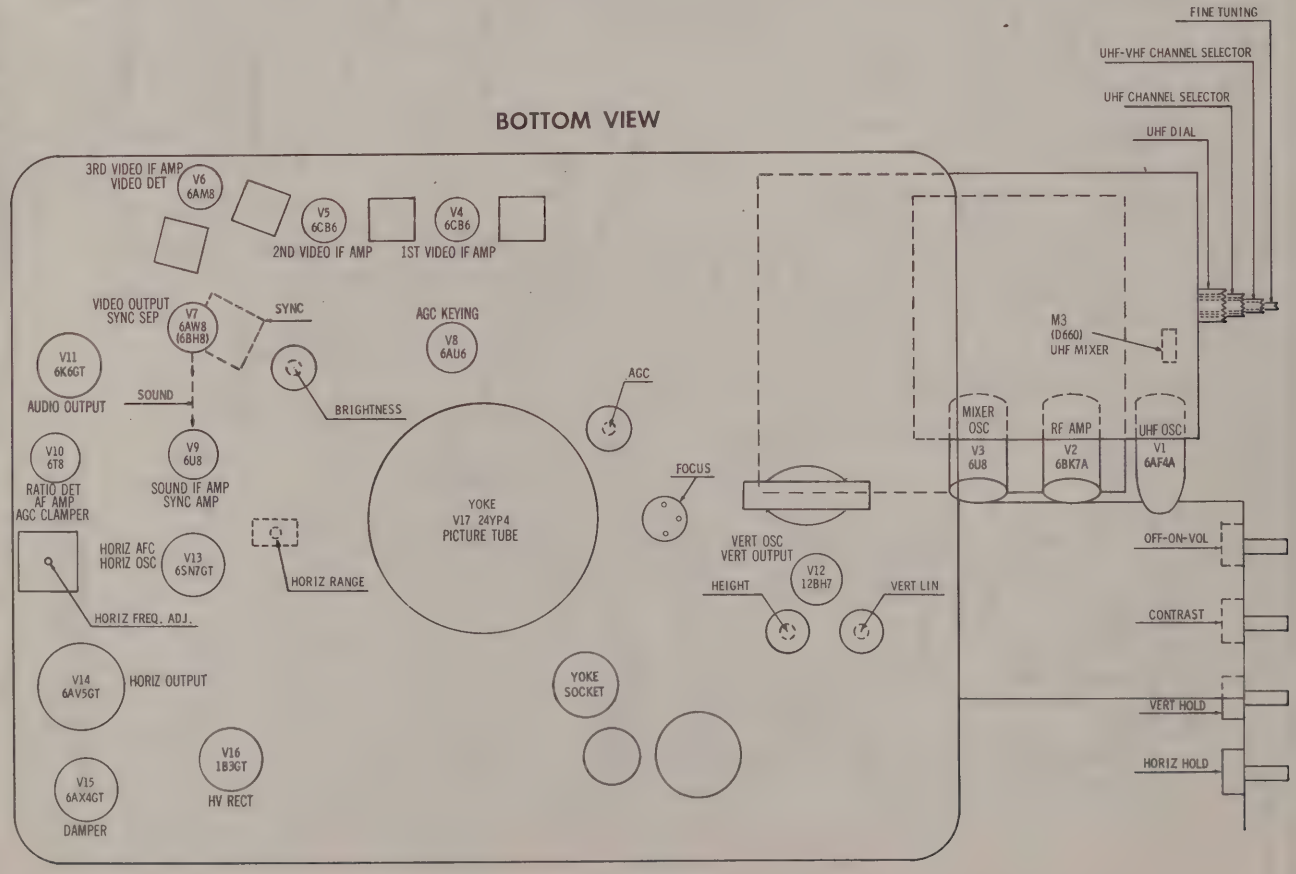
SILVERTONE MODELS 5161, 5171, 6100, 6101, 6106, 6107, 6108, 6109, 6110, 6111, 6112, 6113, 6114, 6115, Y, 6116, 6117, 6120, 6121, 6126, 6127, 6128, 6129, A, 6130, 6131, A, 6160, 6164, 6165, 6166, 6167, 6171, 6172, 6173, 6174, 6176, 6184, 6186, 6190, 6191, 6192, A

RESISTANCE MEASUREMENTS

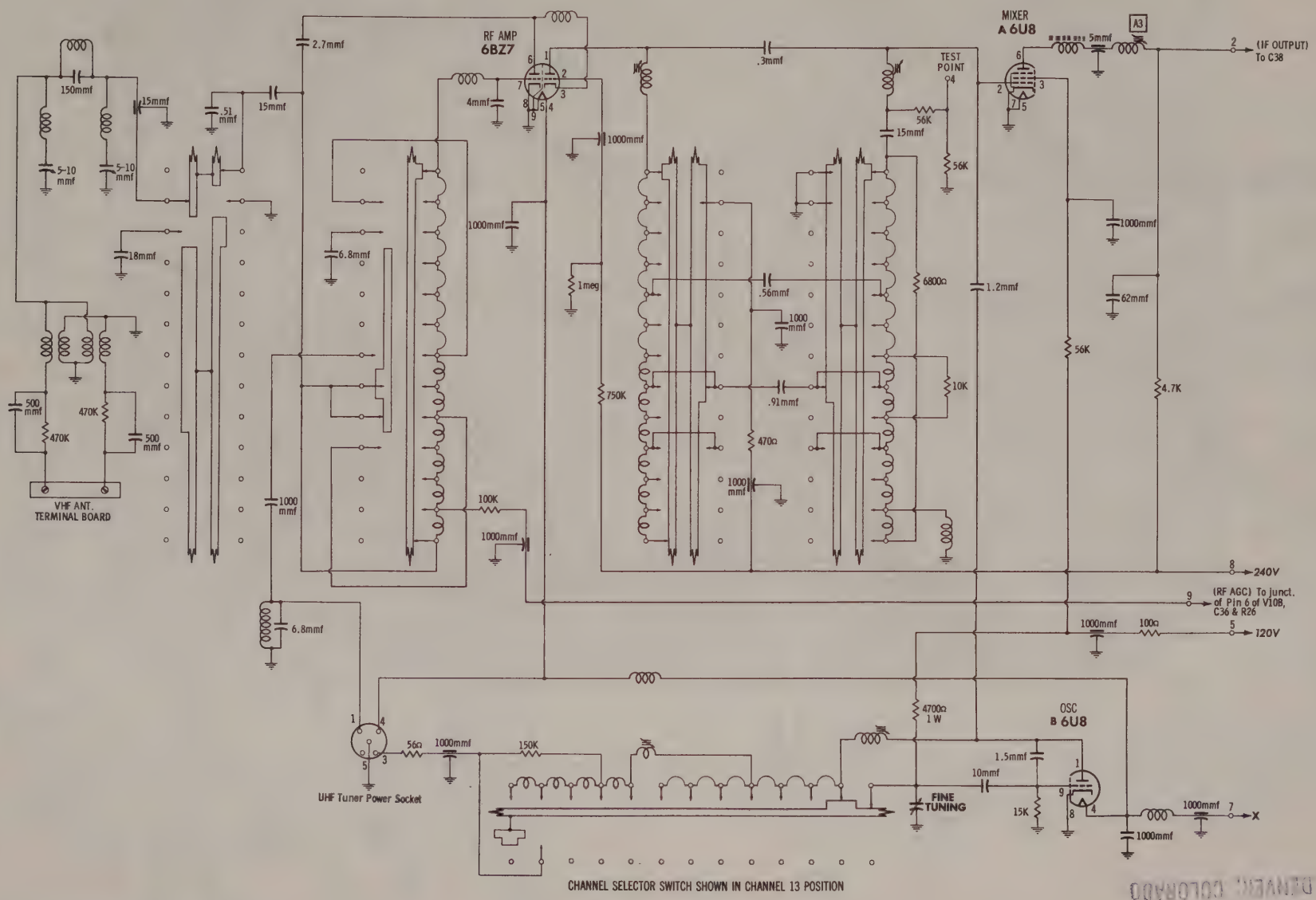
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AF4A	*† 7000K	6800Ω	.1Ω	0Ω	0Ω	6800Ω	*† 7000K		
V2	6BK7A	† 140Ω	400K	INF	.1Ω	0Ω	INF	600K	0Ω	0Ω
V3	6U8	† 6000Ω	470K	† 120K	.1Ω	0Ω	† 4800Ω	0Ω	0Ω	15K
V4	6CB6	40K	39Ω	0Ω	.1Ω	† 2200Ω	† 2200Ω	0Ω		
V5	6CB6	40K	56Ω	0Ω	.1Ω	† 2200Ω	† 2200Ω	0Ω		
V6	6AM8	220Ω	.1Ω	† 3100Ω	.1Ω	0Ω	† 3100Ω	.2Ω	4700Ω	0Ω
V7	6AW8	0Ω	2.2Meg	† 680K	0Ω	.1Ω	30Ω	4700Ω	† 2100Ω	† 5200Ω
V8	6AU6	† 1800Ω	† 600	† 600Ω	† 600Ω	250K	▲ 22K	† 600Ω		
V9	6U8	† 6000Ω	5.5Ω	† 4300Ω	.1Ω	0Ω	† 4300Ω	560Ω	4700Ω	† 680K
V10	6T8	INF	18K	INF	0Ω	.1Ω	600K	0Ω	4.7Meg	† 270K
V11	6K6GT	NC	.1Ω	† 1400Ω	† 1000Ω	470K	TP	0Ω	330Ω	
V12	12BH7	▲ 1700Ω	2.2Meg	2KΩ	.1Ω	.1Ω	▲ 3Meg	1.5Meg	210Ω	0Ω
V13	6SN7GT	750K	† 50K	300K	250K	† 39K	0Ω	0Ω	.1Ω	
V14	6AV5GT	470K	0Ω	0Ω	NC	▲ 22Ω	NC	.1Ω	† 10K	
V15	6AX4GT	NC	NC	80K	NC	† 140Ω	NC	.1Ω	0Ω	
V16	1B3GT		PINS	1 - 8	HAVE	INF	RESISTANCE			TOP CAP ▲ 482Ω
V17	24YP4	0Ω	30K	PIN 6 † 140Ω	PIN 10 ▲ 15Ω	PIN 11 † 250K	PIN 12 :1Ω			

* MEASURED IN UHF POSITION
† MEASURED FROM OUTPUT OF M2.
▲ MEASURED FROM PIN 3 OF V15.
TP-TIE POINT
NC-NO CONNECTION

BOTTOM VIEW



TUBE PLACEMENT CHART

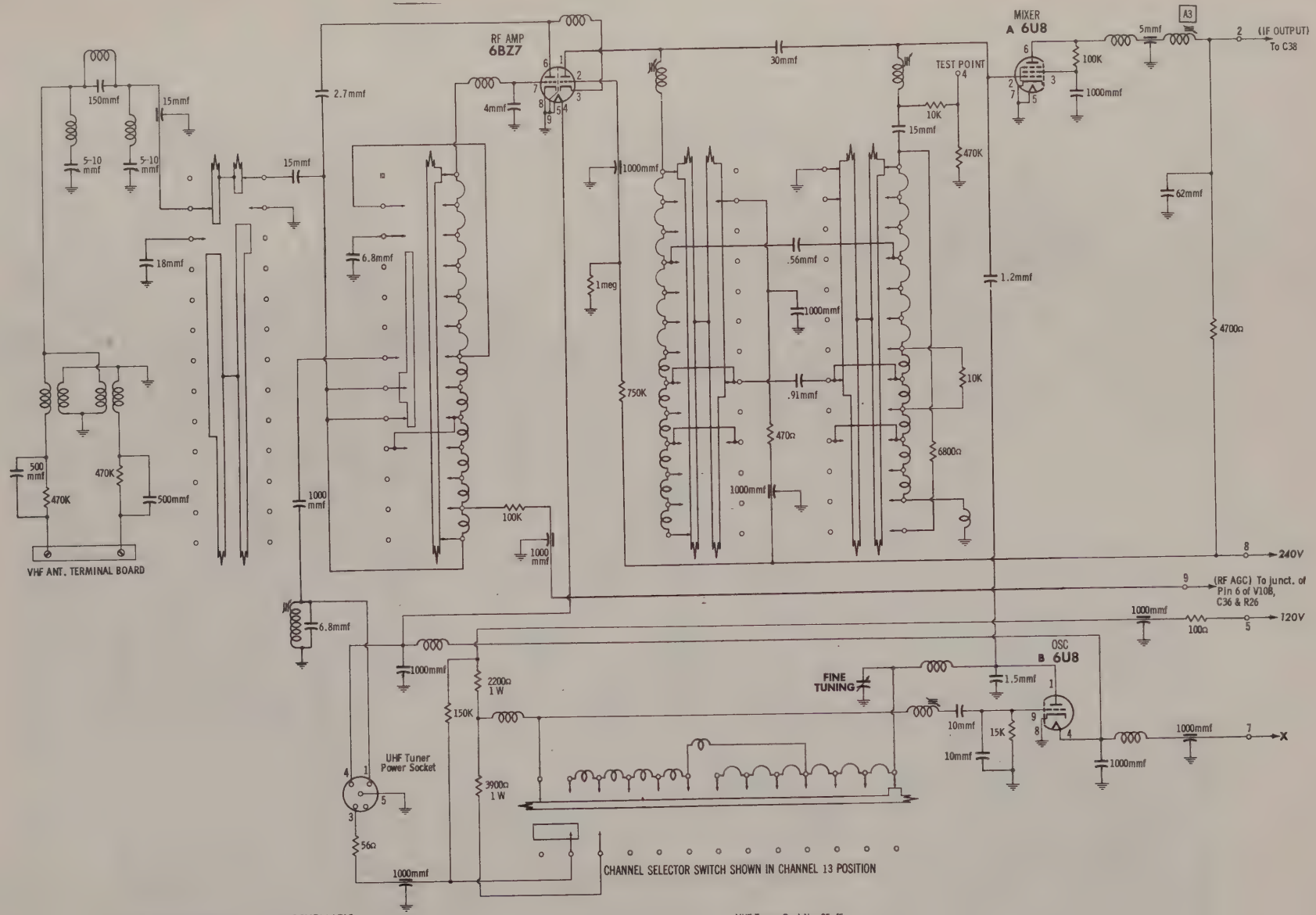


A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1956

ALTERNATE VHF TUNER SCHEMATIC

SILVERTONE MODELS 5161, 5171, 6100, 6101, 6106, 6107, 6108, 6109, 6110, 6111, 6112, 6113, 6114, 6115, Y, 6116, 6117, 6120, 6121, 6126, 6127, 6128, 6129, A, 6130, 6131, A, 6160, 6164, 6165, 6166, 6167, 6171, 6172, 6173, 6174, 6176, 6184, 6186, 6190, 6191, 6192, A

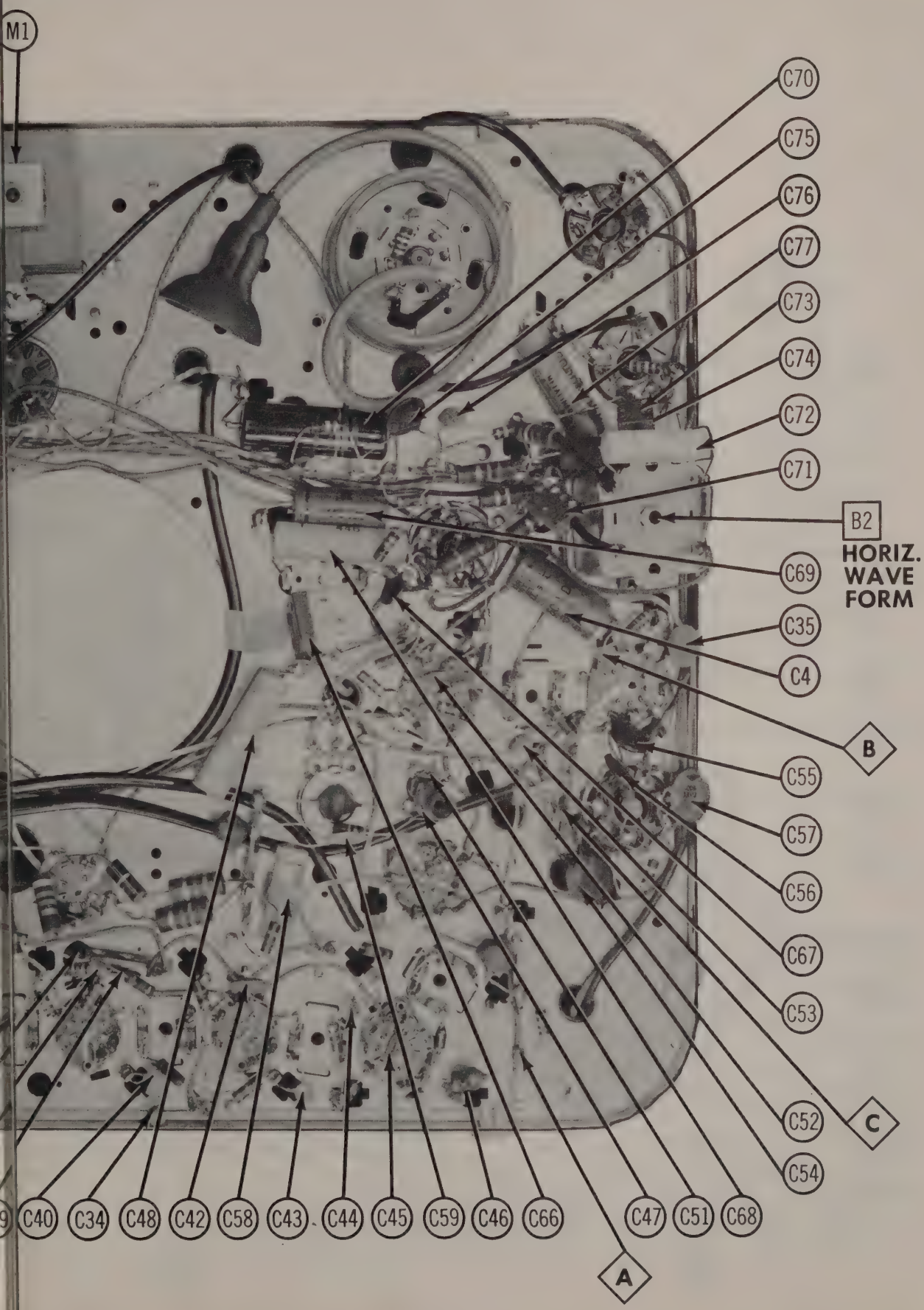


A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1956

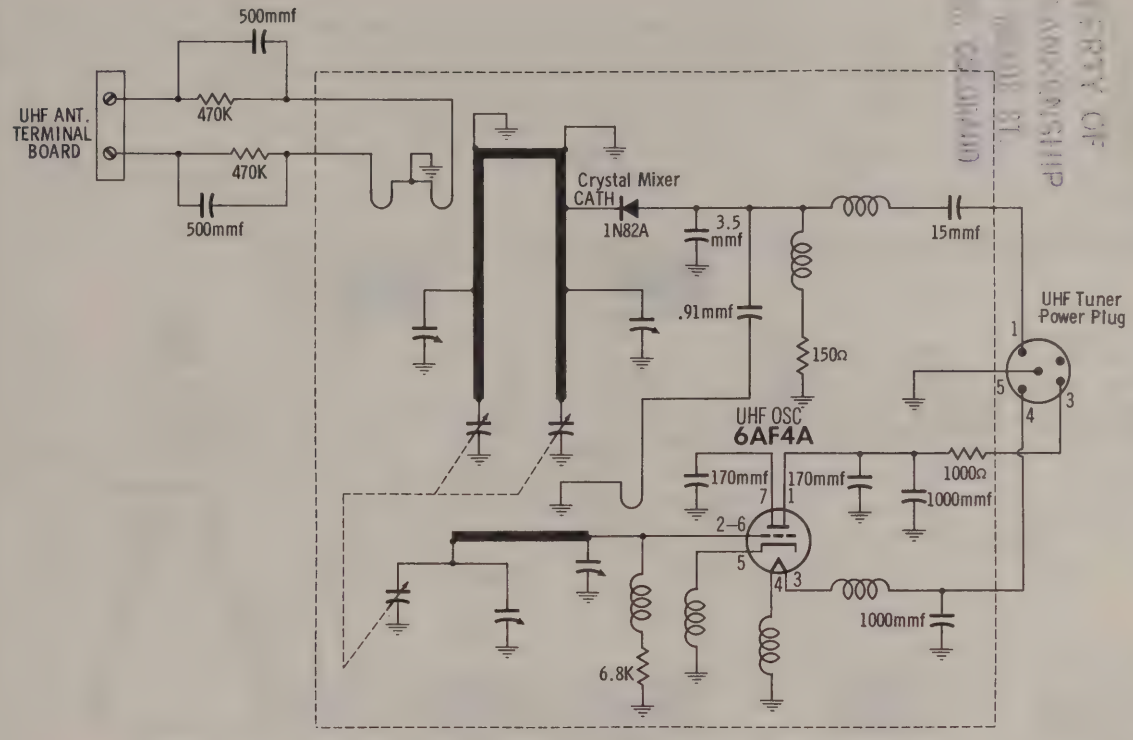
VHF Tuner Part No. 95-45

ALTERNATE VHF TUNER SCHEMATIC

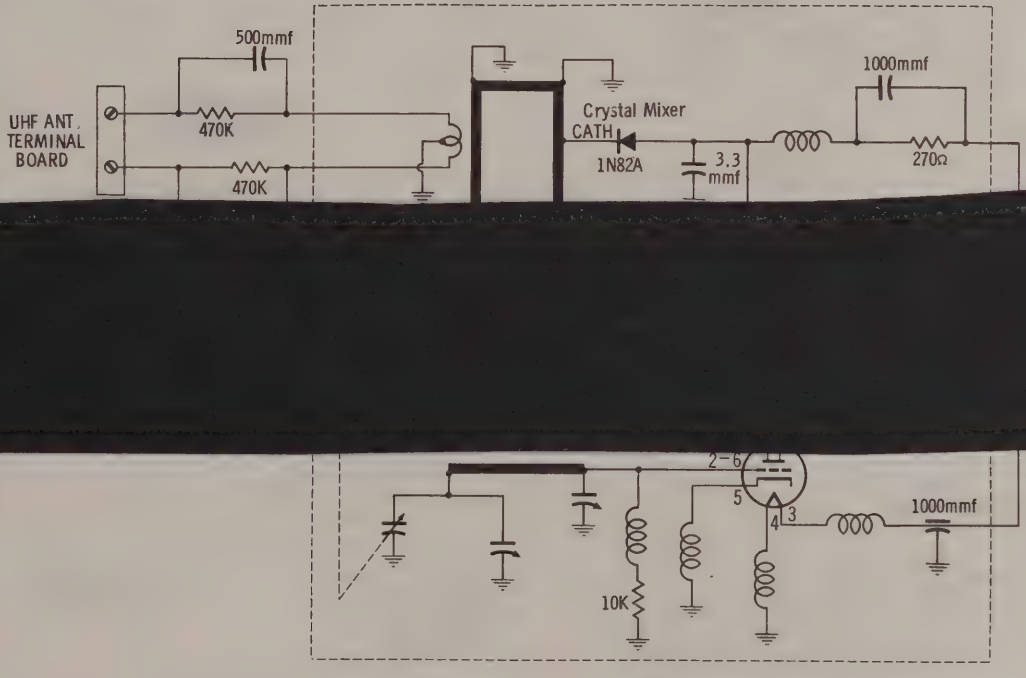


SILVERTONE MODELS 5161, 5171, 6100, 6101, 6106, 6107, 6108, 6109, 6110, 6111, 6112, 6113, 6114, 6115, Y, 6116, 6117, 6120, 6121, 6126, 6127, 6128, 6129, A, 6130, 6131, A, 6160, 6164, 6165, 6166, 6167, 6171, 6172, 6173, 6174, 6176, 6184, 6186, 6190, 6191, 6192, A

TOR AND ALIGNMENT IDENTIFICATION



UHF Tuner Part No. 95-66 and 95-72



UHF Tuner Part No. 95-46 and 95-59

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1956

UHF TUNER SCHEMATICS

EW

ADJUSTMENTS

...nge trimmer (B3) maximum clockwise.

2. If the picture cannot be synchronized with the horizontal hold control, set the control to its mid-position and adjust the horizontal frequency slug (B1) until the picture is in sync. If the picture will not synchronize, turn the horizontal waveform slug (B2) several turns counter clockwise and readjust B1 until the picture synchronizes.

HORIZONTAL WAVEFORM ADJUSTMENT

Connect the vertical amplifier of an oscilloscope thru a low capacity probe (Fig. 5) to terminal "C" of L27. If necessary, adjust B2 for waveform similar to Fig. 4 with sharp peak 10% higher than the broad peak. Keep the picture in sync while making this adjustment with the horizontal hold control or B1. Remove the scope.

FIG. 4

...NGE TRIMMER ADJUSTMENT

1. Turn the horizontal hold control maximum counter clockwise. Switch off channel and back again. If the picture does not lose sync, turn B1 counter clockwise until picture loses sync when switching off channel and back again. Adjust B1 clockwise until the picture just pulls into sync.

2. Turn the horizontal hold control maximum clockwise. Switch off channel and back again. If the picture does not pull into sync, turn the horizontal range trimmer (B3) clockwise until the picture pulls into sync.

3. Due to the reaction between B1 and B3 it may be necessary to repeat steps 1 and 2 several times before proper synchronization is obtained. When properly adjusted, the picture should remain in sync at both extreme settings of the horizontal hold control when switching off channel and back again.

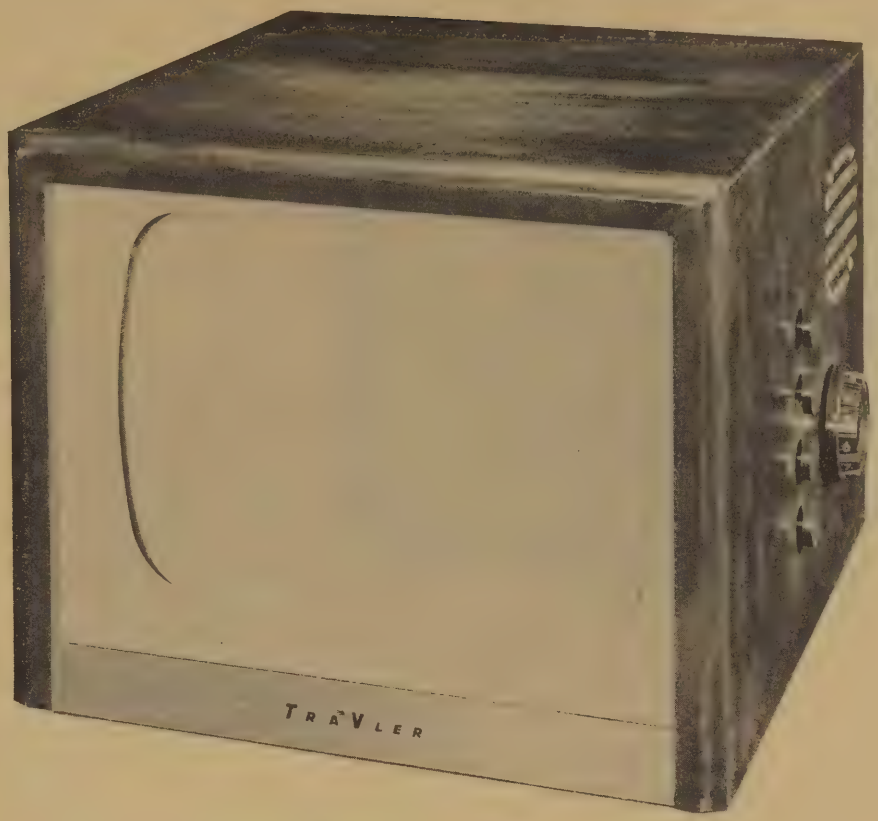
FIG. 5

TRAV-LER MODELS 517-106, 517-107, 521-111, 521-112 (Ch. 520C5)

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . unless it has been purchased as part of a complete volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



TRAV-LER MODEL 517-107

TRADE NAME	Trav-Ler Models 517-106, 517-107, 521-111, 521-112 (Ch. 520C5)
MANUFACTURER	Trav-Ler Radio Corp., 571 W. Jackson Blvd., Chicago 6, Illinois
TYPE SET	Television Receiver
TUBES	Thirteen
POWER SUPPLY	110-120 Volts AC or DC 60 Cycle RATING 1.03 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13, Video IF 26.25MC, Sound IF 21.75MC (Intercarrier)

INDEX

Alignment Instructions 6, 7
Disassembly Instructions 1
Horizontal Sweep Circuit Adjustments 14
Parts List and Descriptions 12, 13
Photographs
- Cabinet-Rear View 14
- Capacitor Identification 4
- Chassis-Top View 3
- RF Tuner 11

Photographs (Cont)
- Resistor Identification 9
- Trans., Inductor & Alignment Identification 10

Resistance Measurements 8
Servicing in the Field 1
Schematic 2
Tube Failure Check Chart 5
Tube Placement Chart (Bottom View) 8
Tube Placement Chart (Top View) 5

TRAV-LER MODELS 517-106, 517-107, 521-111, 521-112 (Ch. 520C5)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1956 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 9-56 SET 330 FOLDER 11

PHOTOFACT* Folder
*TRADE MARK

TRAV-LER MODELS 517-106, 517-107, 521-111, 521-112 (Ch. 520C5)

DISASSEMBLY INSTRUCTIONS

CABINET REMOVAL

1. Remove 6 push-on type control knobs from side panel of cabinet.

2. Remove 2 wood screws and 1 metal screws. Remove rear cover.

3. Disconnect speaker leads.

4. Remove only the chassis mounting board bolts. (Identified by painted heads).

5. Lift cabinet from mounting board.

CHASSIS REMOVAL

1. Remove 6 push-on type control knobs from side panel of cabinet.

2. Remove 2 wood screws and 1 metal screw . Remove rear cover.

3. Remove picture tube socket, yoke plug, HV lead, ground strap and speaker leads.

4. Remove 3 chassis bolts. Remove chassis.

5. Remove 4 speaker nuts. Remove speaker.

MODEL	CHASSIS
517-107	520C5

TRAV-LER MODELS 517-106, 517-107, 521-111, 521-112 (Ch. 520C5)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removal of the channel selector and fine tuning knobs. The adjustments are accessible, one at a time, thru the small hole in the cabinet just below the channel selector shaft.

PICTURE TUBE SAFETY CLEANING

For picture tube safety glass cleaning, it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 5.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Set the horizontal hold control to center range and adjust the horizontal frequency slug (L11) until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

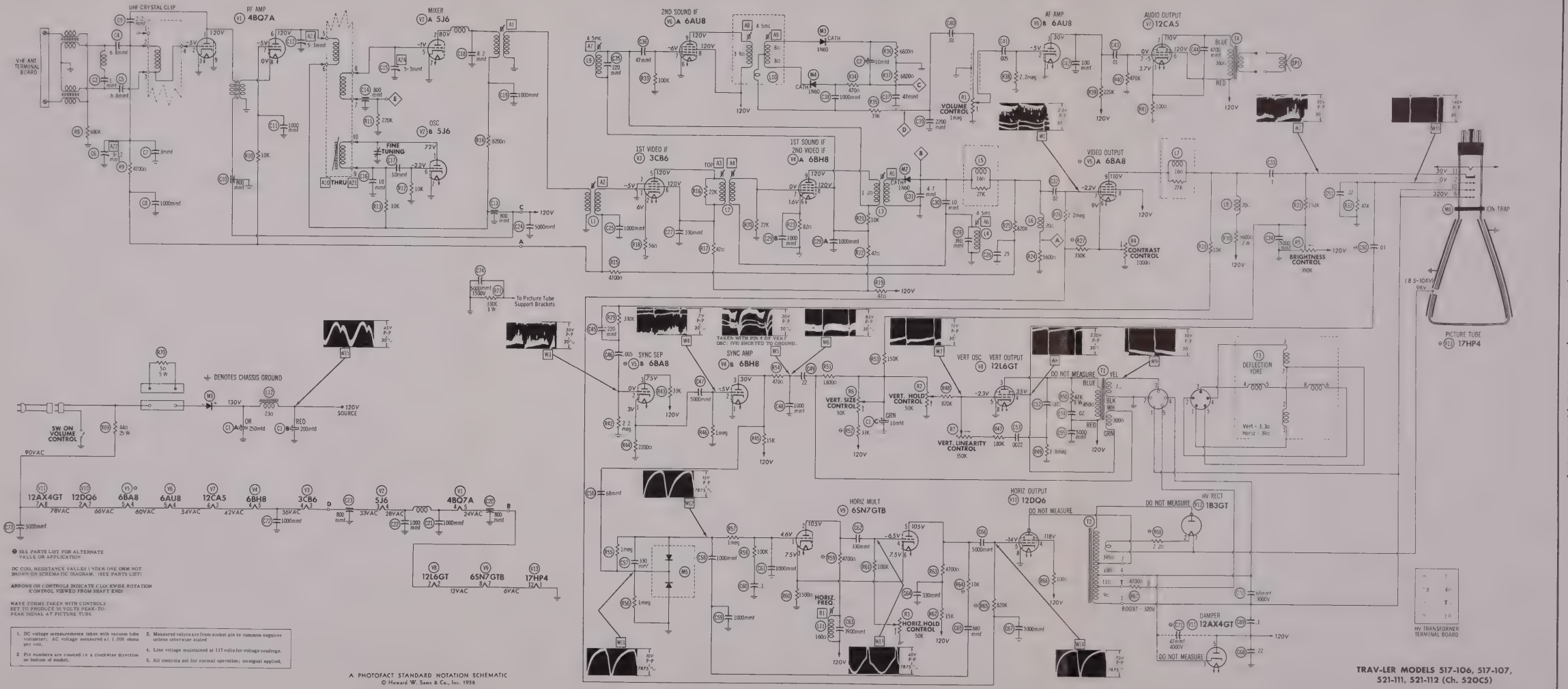
To eliminate sound IF detector buzz, adjust the ratio detector secondary (L10) located on top of the chassis.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

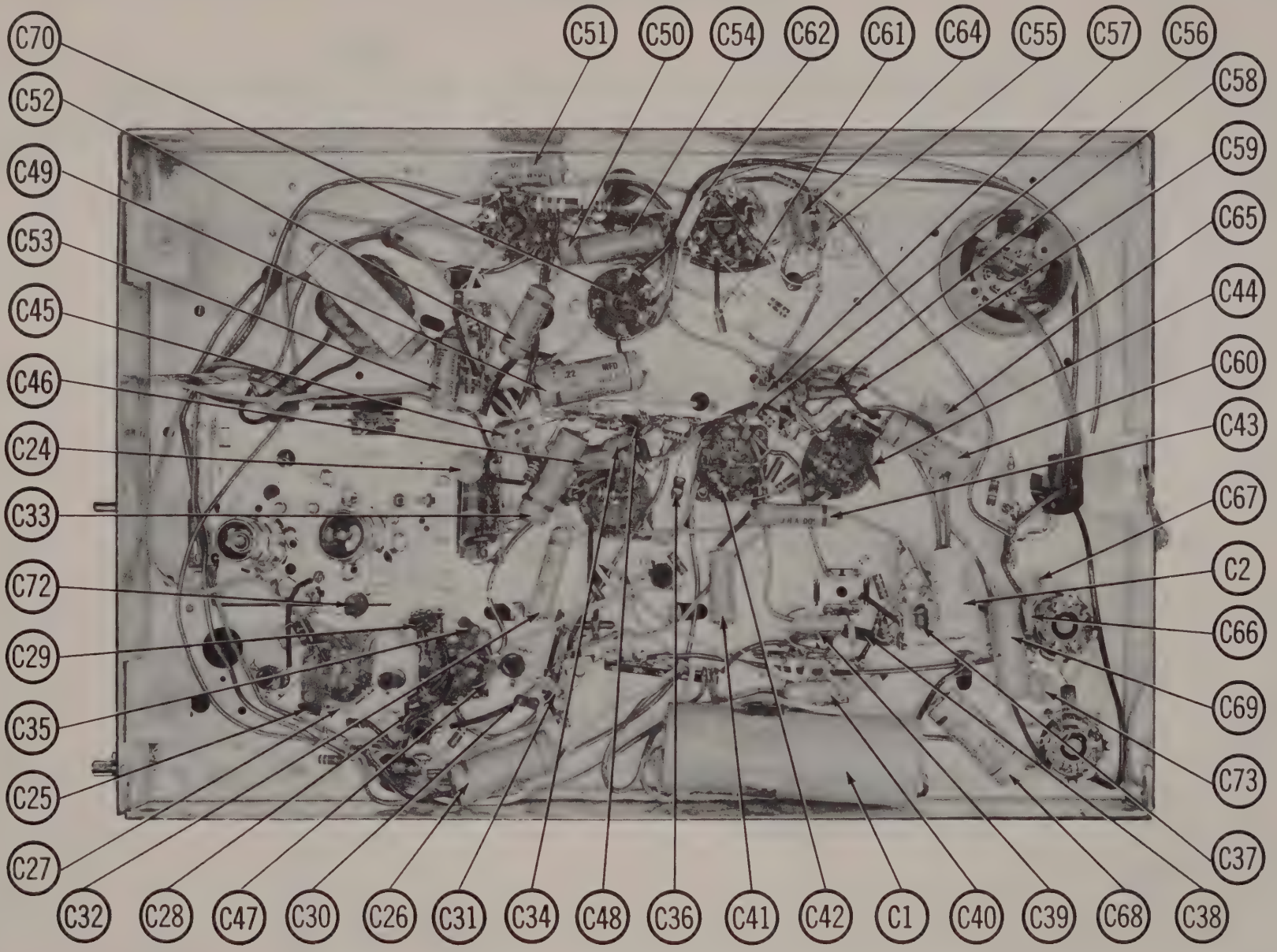
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1956 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America


UHF CRYSTAL CLIP
VHF ANT TERMINAL BOARD
RF AMP V1 4BQ7A
MIXER V2A 5J6
OSC V2B 5J6
FINE TUNING
THRU
2ND SOUND IF V6A 6AU8
AF AMP V6B 6AU8
AUDIO OUTPUT V7 12CA5
VOLUME CONTROL 1meg
1ST VIDEO IF V3 3CB6
1ST SOUND IF 2ND VIDEO IF V4A 6BH8
VIDEO OUTPUT V5A 6BA8
CONTRAST CONTROL 100K
BRIGHTNESS CONTROL 350K
ION TRAP
PICTURE TUBE V13 17HP4
To Picture Tube Support Brackets
DENOTES CHASSIS GROUND
SW ON VOLUME CONTROL
90VAC
120V SOURCE
SYNC SEP V5B 6BA8
SYNC AMP V4B 6BH8
VERT OSC VERT OUTPUT V8 12L6GT
VERT. SIZE CONTROL 50K
VERT. HOLD CONTROL 50K
VERT. LINEARITY CONTROL 150K
DEFLECTION YOKE
DO NOT MEASURE
HORIZ MULT V9 6SN7GTB
HORIZ. FREQ.
HORIZ. HOLD CONTROL 50K
HORIZ OUTPUT V10 12DQ6
HV RECT V12 1B3GT
BOOST 320V
DAMPER V11 12AX4GT
HV TRANSFORMER TERMINAL BOARD
TAKEN WITH PIN 4 OF VERT. OSC. (V8) SHORTED TO GROUND.
12AX4GT 12DQ6 6BA8 6AU8 12CA5 6BH8 3CB6 5J6 4BQ7A
12L6GT 6SN7GTB 17HP4
78VAC 66VAC 60VAC 54VAC 42VAC 36VAC 33VAC 28VAC 24VAC
12VAC 6VAC
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM. (SEE PARTS LIST)
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1956
TRAV-LER MODELS 517-106, 517-107, 521-111, 521-112 (Ch. 520C5)

TRAV-LER MODELS 517-106, 517-107, 521-111, 521-112 (Ch. 520C5)

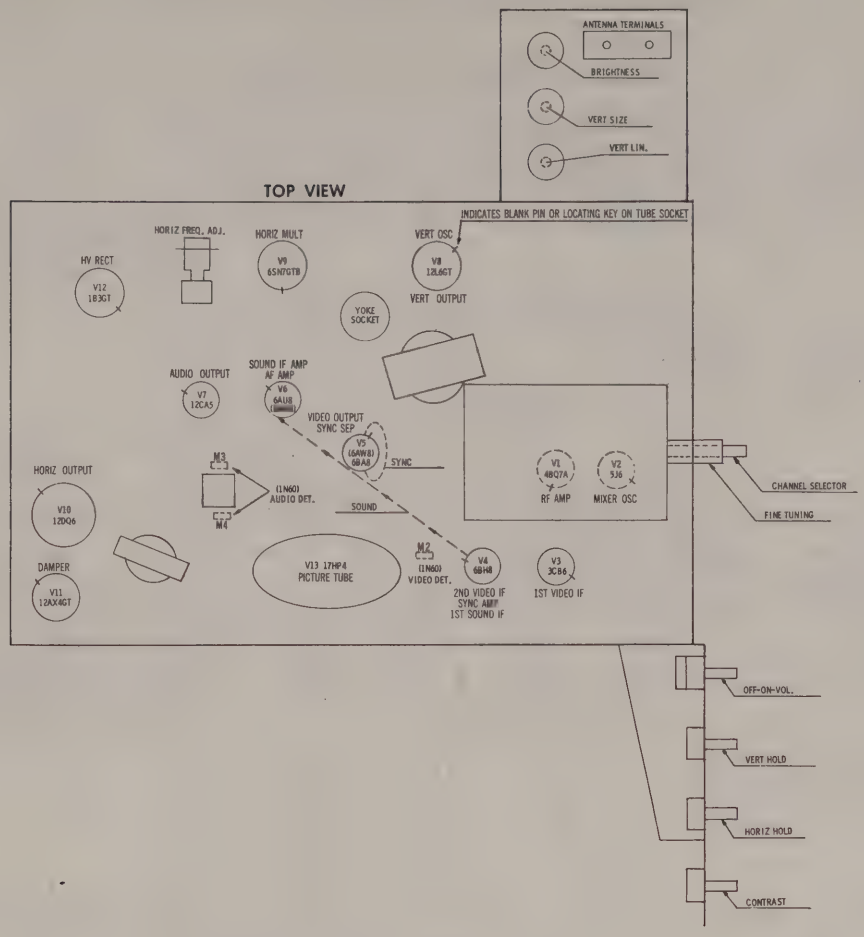
TRAV-LER MODELS 517-106,
517-107, 521-111, 521-112 (Ch. 520C5)

CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

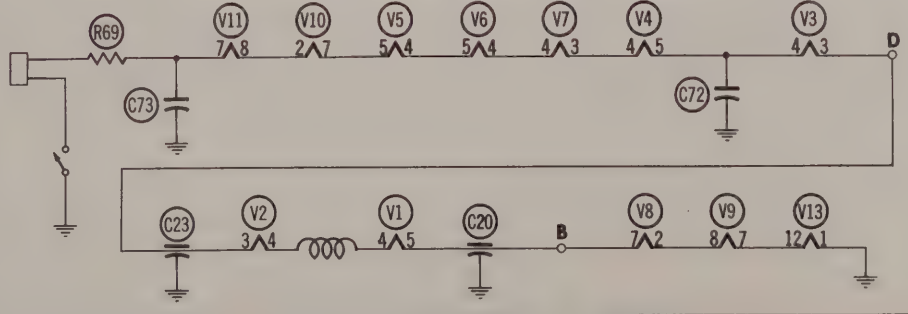
POWER SUPPLY FAILURE
No raster, no sound - Selenium Rectifier (M1)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V5, V13
Has pic, no sound - V4, V6, V7

SYNC FAILURE
No vert. sync - V4, V8
No horiz. sync - V4, V9
No vert. or horiz. sync - V4, V5

SWEEP FAILURE
No raster, has sound - V9, V10, V11, V12, V13
No vertical deflection - V8
Poor vert. linearity or foldover - V8
Poor horiz. linearity or foldover - V9, V10, V11
Narrow picture - V9, V10, V11, V12, M1
Vert. off freq. - V4, V8
Horiz. off freq. - V4, V9

NOTE: Since this receiver employs tubes used in series filament network, an open filament in any tube in series will cause the set to be inoperative. (See circuit below).



SET 330 FOLDER 11

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal multivibrator tube (V9) to disable the high voltage.
Use an isolation transformer to protect the test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt battery to the ungrounded side of C25. Connect the positive lead to chassis.
Set the contrast control fully counter clockwise.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over converter tube (V2). Low side to chassis.	24.75MC (10MC Swp)	21.75MC 26.25MC	12	Vert. Amp. to point Ⓐ .-Low side to chassis.	A1, A2, A3, A4, A5	Adjust for response curve similar to Fig.1 with markers properly located. A1 and A3 affect the high frequency (26.25MC) side of response curve. A2 and A4 affect the low frequency (21.75MC) side. Adjust A5 to control tilt.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
3.	Direct	High side to point Ⓑ . Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point Ⓒ. Common to chassis.	A6, A7, A8	Adjust for maximum deflection.
4.	"	"	"	"	DC probe to point Ⓓ. Common to chassis.	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Direct	High side to point Ⓑ . Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. Amp. to point Ⓒ . Low side to chassis.	A6, A7, A8	Disconnect stabilizing capacitor (C2). Adjust for curve of maximum amplitude and symmetry similar to Fig. 2.
4.	"	"	"	"	"	Vert. Amp. to point Ⓓ . Low side to chassis.	A9	Reconnect C2. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 3. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

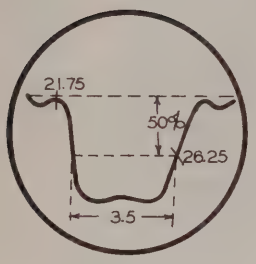


FIG. 1

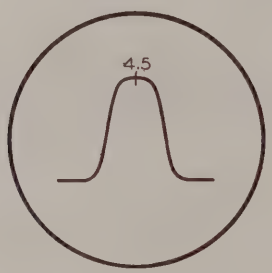


FIG. 2

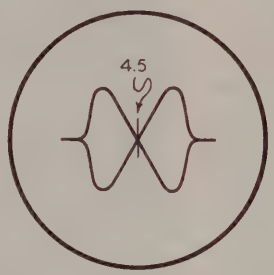


FIG. 3

ALIGNMENT INSTRUCTIONS (cont)

OSCILLATOR ALIGNMENT

Connect the bias as under "Video IF Alignment".
The channel oscillator adjustment screws are reached through a hole just below the channel switch shaft. The correct adjustment screws are accessible through this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 47KΩ to point (A). Low side to chassis.	A10	Adjust to place sound marker in trap notch as in Fig. 4. Video marker should fall at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A11	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A12	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A13	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A14	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A15	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A16	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A17	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A18	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A19	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A20	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A21	

RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. Amp. thru 10KΩ to point (E). Low side to chassis.	A22, A23, A24	Adjust for response curve similar to Fig. 5 with markers above 90%.
7.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response similar to Fig. 5. If markers fall below 70% on any channel, make compromise adjustments of A22, A23 and A24 with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

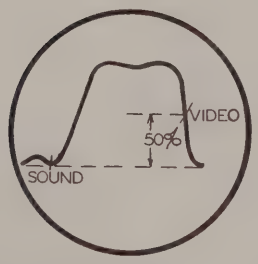


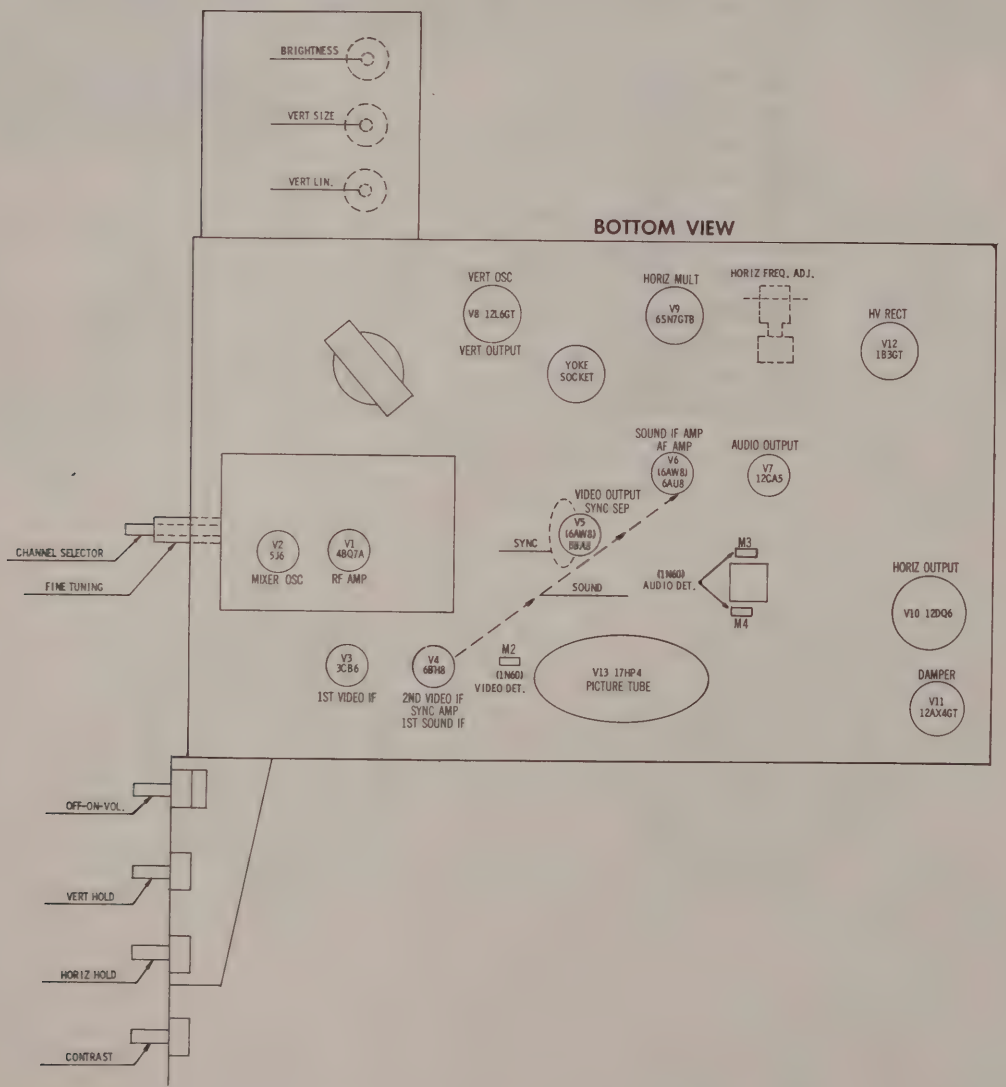
FIG.4

FIG.5

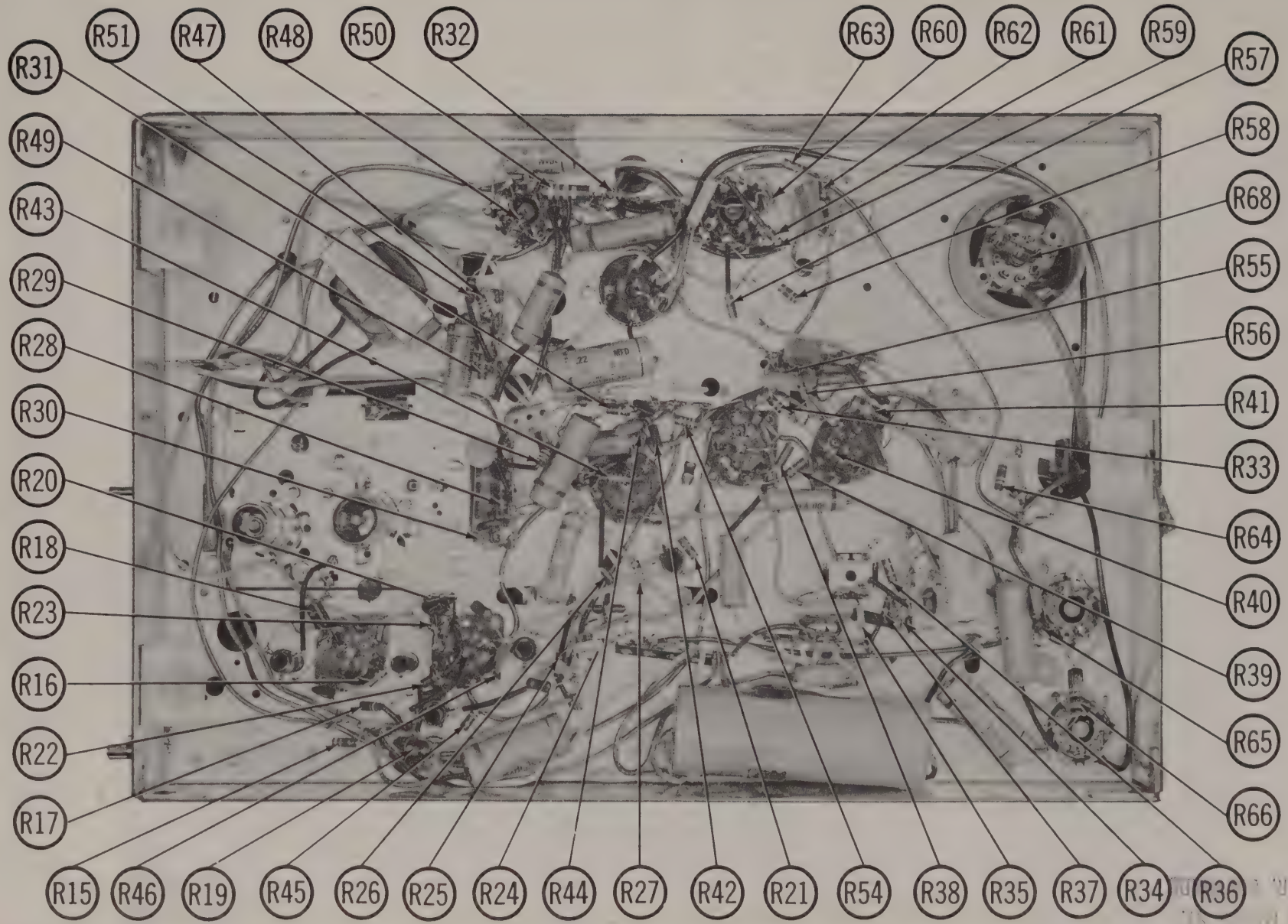
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	4BQ7A	†23Ω	800K	0Ω	7Ω	6Ω	†23Ω	800K	0Ω	0Ω
V2	5J6	†10K	†8200Ω	8Ω	7Ω	220K	10K	0Ω		
V3	3CB6	800K	56Ω	8Ω	9Ω	†115Ω	†115Ω	0Ω		
V4	6BH8	0Ω	1meg	†15K	10Ω	9Ω	82Ω	1.1Ω	†115Ω	†115Ω
V5	6BA8	2200Ω	2.2meg	†33K	14Ω	16Ω	300Ω	2.2meg	†23Ω	†5600Ω
V6	6AU8	0Ω	2.2meg	†220K	12Ω	14Ω	0Ω	100K	†23Ω	†27Ω
V7	12CA5	100Ω	470K	10Ω	12Ω	470K	†23Ω	†385Ω		
V8	12L6GT	TP	3Ω	†475Ω	†25K	750K	TP	6Ω	0Ω	
V9	6SN7GTB	1.7meg	†4700Ω	1500Ω	100K	†20K	1500Ω	3Ω	2Ω	
V10	12DQ6	NC	18Ω	NC	†125Ω	1meg	TP	16Ω	0Ω	TOP CAP •10Ω
V11	12AX4GT	NC	NC	INF.	NC	†23Ω	NC	20Ω	18Ω	
V12	1B3GT	PINS	1-8	HAVE	INF.	RESISTANCE				TOP CAP 405Ω
V13	17HP4	0Ω	47K	Pin 6 •12Ω	Pin 10 •12Ω	Pin 11 †180K	Pin 12 2Ω			

† MEASURED FROM OUTPUT OF MI.
• MEASURED FROM PIN 3 OF V11.
NC NO CONNECTION.
TP TIE POINT.

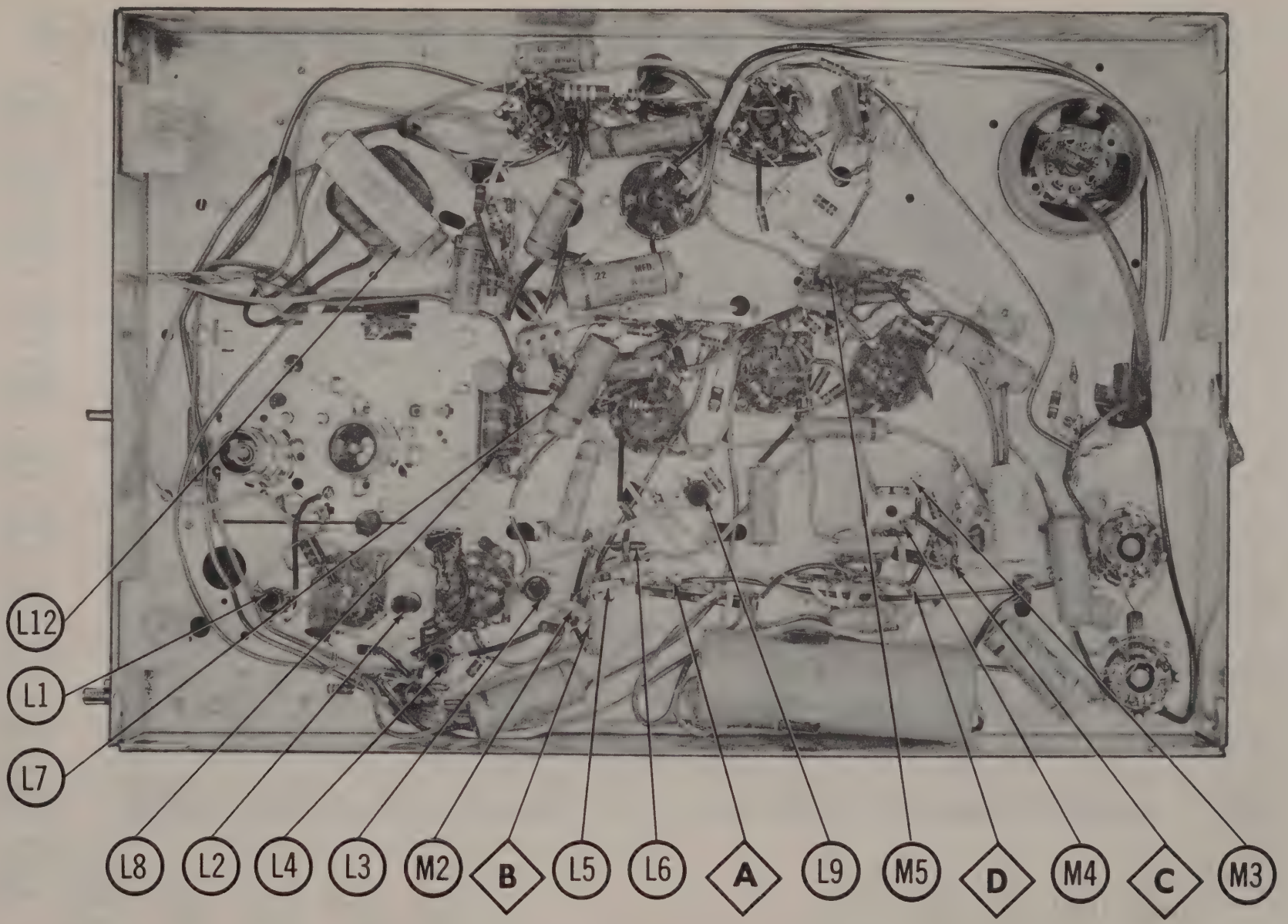


TUBE PLACEMENT CHART

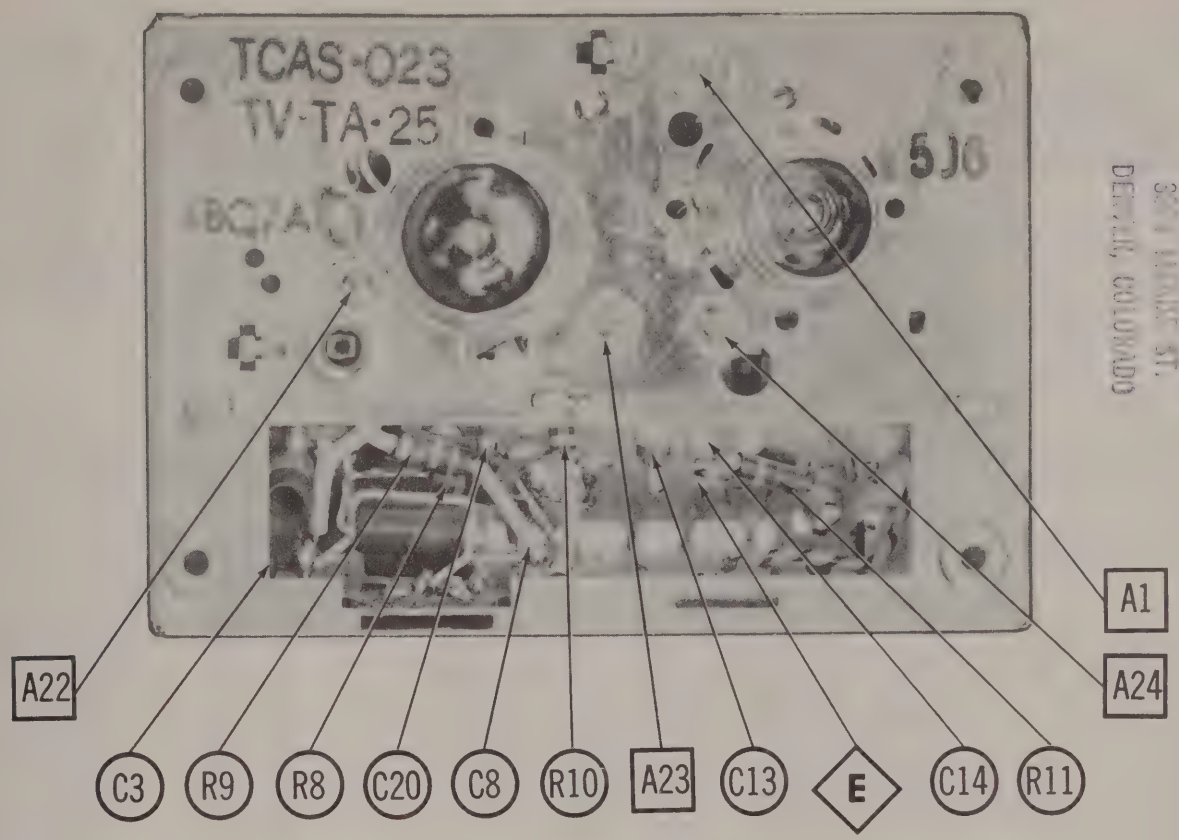


CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

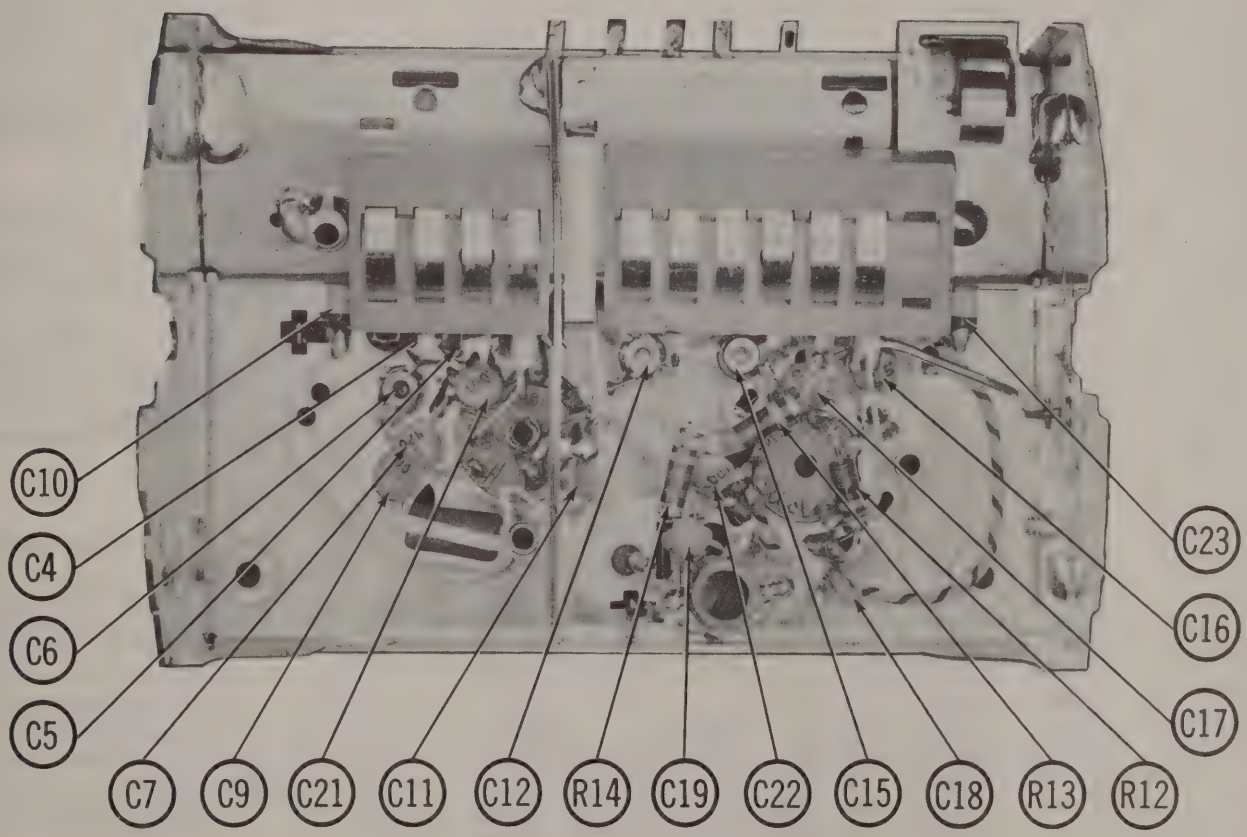
TRAV-LER MODELS 517-106, 517-107, 521-111, 521-112 (Ch. 520C5)



CHASSIS BOTTOM VIEW INDUCTOR AND ALIGNMENT IDENTIFICATION



RF TUNER-TOP VIEW



RF TUNER-BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amplifier	6BQ7A	
V2	Mixer-Oscillator	5J6	
V3	1st. Video IF Amplifier	3CB6	
V4	2nd. Video IF Amplifier-1st. Sound IF-Sync Amp.	6BH6	
V5	Video Output-Sync Sep.	6BA6	Note 1
V6	2nd. Sound IF Amp.-AF Amp	6AU6	Note 1

ITEM No	USE	TYPE	NOTES
V7	Audio Output	12CA5	
V8	Vert. Osc.--Output	12AL5GT	
V9	Horiz. Mult.	6SN7GTB	
V10	Horiz. Output	12DQ6	
V11	Damper	12AX4GT	
V12	HV Rectifier	1B3GT	

Note 1. 6AW8 may be used in some versions.

PICTURE TUBE

ITEM No	REPLACEMENT DATA: TRAV-LER PART No	CBS PART No	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	NOTES
V13	17IP4 ①	17EP4/ 17RP4	17EP4/17RP4	17EP4/ 17RP4	① Aluminized ② Silver screen "S8" ③ Used in models 517-106 and 517-107 ④ Used in models 521-111 and 521-112
		17HP4B ②	17HP4B ①	17HP4B ③	
	21AUP4A ③④	21AUP4A ①	21AUP4A ①		
		21AUP4A/B ①		21AUP24/A/B ①	
	21AUP4				

ELECTROLYTIC CAPACITORS

ITEM No	RATING: CAP.	RATING: VOLT.	REPLACEMENT DATA: TRAV-LER PART No.	ABROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	250	150	TV-EC-39	RE1037		WT320	CDBT-1015	D-995 MT-1506	R2215 *
B	300	150							
C	10	150							
D	10	50	TV-EC-30	PR250V10	BR105	TC32	TD-10-50	FM-0610	TVA-1504

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRAV-LER Part No.	ABROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1	1			NPO-S1	TCZ-1	TZ09	NPOA-010		57CCB-V1	
C2	6.8			NPO-S1S.8	TCZ-6R8	Z015	NPOA-6R8	ET-5568	57CCB-V68	
C3	6.8			NPO-S1S.8	TCZ-6R8	Z015	NPOA-6R8	ET-5568	57CCB-V68	
C4	3-12									
C7	3			NPO-D3	TCZ-3R3	Z007	NPOA-030	ET-583	57CCB-V33	
C8	1000			BPD-001	DD-103	K069	801-001	DC-531	5SK-D1	
C9	3.3			NPO-S1S.2	TCZ-3R2	Z006	NPOA-3R3		57CCB-V33	
C10	560									
C11	1000			BPD-001	DD-103	K069	801-001	DC-531	5SK-D1	
C12	5-8				S3B-3		3115-01-0R5	C7565A		
C13	800									
C14	800									
C15	5-8				S2B-3		3115-01-0R5	C7565A		
C16	10									
C17	10									
C18	8.2			NPO-S1S.2		Z015	NPOA-8R2			
C19	1000			BPD-001	DD-103	K069	801-001	DC-531	5SK-D1	
C20	800									
C21	1000			BPD-001	DD-103	K069	801-001	DC-531	5SK-D1	
C22	1000			BPD-001	DD-103	K069	801-001	DC-531	5SK-D1	
C23	800									
C24	5000		TV-CC-3	BPD-005	DD-503	K080	811-005	DC-535	5SK-D5	
C25	1000		TV-CC-2	BPD-001	DD-102	K069	801-001	DC-531	5SK-D1	
C26	.25	200	TV-PC-4	P388N-25		CUBZP25		PT4025	2TM-P25	
C27	330		TV-CC-4	S1330	D6-331	TP43	811-331	UC-5333		
C28	390		TV-CC-4		D6-391	ET-5769	811-391		MS-339	
C29A	1000		TV-CC-2	DE07I	DD5-103	DK069	813-001	DCD-531	5SK-AD1	
B	1000		TV-CC-2							
C30	10		TV-CC-21	NPO-S1S0	TCZ-10	TZ09	NPOA-100	ET-541	57CC-Q1	
C31	4.7		TV-CC-15	NPO-S14.7	TCZ-4R7	TZ07	NPOA-4R7	ET-5547	57CCB-V47	
C32	.02	200	TV-PC-25	BPD-023	DD-203	CUBD22	811-01	PT4J2	2TM-S3	
C33	.1	200	TV-PC-3	P388N-1		DP-104	CUBSP1	PT401	2TM-P1	
C34	5000		TV-CC-3	BPD-005	DD-503	K080	811-005		5SK-D5	
C35	220		TV-CC-43	S1220	D6-221	TP39	811-221	UC-5323	5GA-T22	
C36	47		TV-CC-12	NPO-S247	D6-470	TZ33	S31-470	ET-5447	57CC-Q47	
C37	47		TV-CC-12	NPO-S247	D6-470	TZ33	S31-470	ET-5447	57CC-Q47	
C38	1000		TV-CC-7	BPD-001	D6-102	K069	801-001	DC-531	5SK-D1	
C39	3200		TV-MC-11	BPD-032	D6-322	K084	811-0023	UC-5323	5SK-D23	
C40	.01	400	TV-PC-11	BPD-01	D6-103	CUB4S1	GP3-333-103	PT4J1	4TM-S1	
C41	.005	400	TV-PC-10	BPD-008	D6-502	CUBSD6	GP2-333-502	PT2S3	6TM-D6	
C42	100		TV-CC-1	S1100	D6-101	TZ04	GPUK-101	UC-541	5GA-T1	
C43	.01	600	TV-PC-15	BPD-01	D6-103	CUB6S1	GP3-333-103	PT6J1	6TM-S1	
C44	4700		TV-CC-15	BPD-0047	D2-473	KD79	811-0047	DC-525	5SK-D47	
C45	220	500	TV-MC-3	DI-00022	D6-221	SW5T23	811-221	UC-5323	5GA-T22	
C46	.005	400	TV-PC-10	BPD-005	D6-502	CUBSD6	GP2-333-502	PT2S3	6TM-D6	
C47	5000		TV-CC-3	BPD-005	DD-503	K080	811-005	DC-535	5SK-D5	
C48	1000		TV-CC-2	BPD-001	DD-102	K069	801-001	DC-531	5SK-D1	
C49	.22	200	TV-PC-25	P388N-33		CUBSP22		PT4J22	2TM-P22	
C50	.03	200		BPD-03	DF-303	CUBS83		PT4J3	4TM-S3	Note 1
C51	.02	200	TV-PC-10	BPD-03	DF-303	CUBS83	811-03	PT4J3	2TM-S3	
C52	.022	200	TV-PC-24	BPD-023	DF-303	CUBSD22	811-023	PT4J22	2TM-S22	
C53	.0022	600	TV-PC-24	BPD-0022	D6-322	CUBSD22	GP3-333-322	PT6J22	6TM-D22	
C54	.03	600	TV-PC-14	BPD-03	DF-303	CUBS83	811-03	PT6J3	6TM-S3	
C55	5000		TV-CC-3	BPD-005	DD-503	K080	811-005	DC-535	5SK-D5	
C56	68		TV-MC-21	NPO-S168		TZ26	NPO-337-680		MS-468	
C57	330	500	TV-MC-13	1464-00033	D6-331	SR5T33	811-331		MS-333	
C58	1000		TV-CC-7	1464-001		1R5D1	811-102	DC-531	5SK-D1	
C59	1000		TV-CC-7	1464-001		1R5D1	811-102	DC-531	5SK-D1	
C60	.1	200	TV-PC-3	P388N-1	DF-104	CUBSP1		PT401	2TM-P1	
C61	1000		TV-CC-2	BPD-001	DD-102	K069	801-001	DC-531	5SK-D1	
C62	330	500	TV-MC-13	1464-00033	D6-331	SW5T33	811-331	UC-5333	5GA-T33	
C63	3900	500	TV-MC-13	1464-00039		1R5D39		MCB-463	MS-339	
C64	330	500	TV-MC-16	1464-00033	D6-331	SR5T33	811-331		MS-333	
C65	390	500	TV-MC-16	1464-00060	D6-681	1R5T68	811-681		MS- 368	
C66	5000		TV-CC-3	BPD-005	DD-503	K080	811-005	DC-525	5SK-D5	
C67	5000		TV-CC-3	BPD-005	DD-503	K080	811-005	DC-535	5SK-D5	
C68	.22	200	TV-PC-25	P388N-33		CUBSP22		PT4022	2TM-P22	
C69	.1	600	TV-PC-15	P688N-1	DF-104	CUB6P1		PT601	6TM-P1	
C70	68	3000	TV-CC-41	SV33J-68	DCD5-680	V3Q68	3KV-680	DC30447	30GA-Q68	
C71	47	4000		HVD-50-47		V5Q47			50GA-Q47	Note 2
C72	1000		TV-CC-2	BPD-001	DD-102	K069	801-001	DC-531	5SK-D1	
C73	5000		TV-CC-3	BPD-005	DD-503	K080	811-005	DC-525	5SK-D5	
C74	5000	1500	TV-CC-40	HVD-15-4700	DD15-502	V2D47	15KV-472		15GA-D5	

Note 1. Some versions may use .01MFD unit (part number TV-PC-10) in this application.
Note 2. Used with 21" models only.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRAV-LER Part No.	CENTRALAB Part No.	CLAROSTAT Part No.	IRC Part No.	MALLORY Part No	INSTALLATION NOTES
R1A	1Meg	1	TV-VC-81	AB-70	A47-1Meg-2	Q1I-127	U-53	Volume
B	Shaft		Not Req.	AK-4	KN8-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	KB-1	SWK-13	T8-1	UB-36	Attach to R1A
R2A	50K	½	VC-73	AB-31	A47-50K-S	Q1I-123	TA54L	Vert. Hold
B	Shaft		Not Req.	AK-4	KN8-3	Not Req.	Not Req.	Attach to R2A
R3A	50K	½	VC-73	AB-31	A47-50K-S	Q1I-123	TA54L	Horiz. Hold
B	Shaft		Not Req.	AK-4	KN8-3	Not Req.	Not Req.	Attach to R3A
R4A	1000Ω	½	VC-61	AB-5	A47-1000-S	Q1I-106	TA13L	Contrast
B	Shaft		Not Req.	AK-6	KN8-3	Not Req.	Not Req.	Attach to R4A
R5A	350K	½	VC-74	AB-39	A47-3000-S	Q1I-133	TA85L	Brightness
B	Shaft		Not Req.	AK-1	RN-3	Not Req.	Not Req.	Attach to R5A
R6A	50K	½	VC-73	AB-31	A47-50K-S	Q1I-123	TA54L	Vert. Size
B	Shaft		Not Req.	AK-1	RN-3	Not Req.	Not Req.	Attach to R6A
R7A	350K	½	VC-74	AB-39	A47-3000-S	Q1I-133	TA85L	Vert. Linearity
B	Shaft		Not Req.	AK-1	RN-3	Not Req.	Not Req.	Attach to R7A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise noted.

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRAV-LER Part No.	IRC Part No.	NOTES
R8	560K			BTS-560K	
R9	4700Ω			BTS-4700	
R10	10K			BTS-10K	
R11	330K			BTS-330K	
R13	10K				
R13	10K			BTS-10 K	
R14	8200Ω			BTS-8200	
R15	4700Ω		TV-IR-48	BTS-4700	
R16	2K		TV-IR-45		
R17	47Ω		TV-IR-97	BTS-47	
R18	56Ω		TV-IR-113	BTS-56	
R19	47Ω		TV-IR-97	BTS-47	
R20	33K			BTS-33K	
R21	10K		TV-IR-54		
R22	47Ω		TV-IR-97	BTS-47	
R23	82Ω		TV-IR-72	BTS-82	
R24	5600Ω		TV-IR-52	BTS-5600	
R25	330K		TV-IR-116	BTS-330K	
R26	2.2Meg		TV-IR-13	BTS- 2.2Meg	
R27	330K		TV-IR-51	BTS-330K	Note 1
R28	10K		TV-IR-54	BTS-10K	
R29	330K		TV-IR-51	BTS-330K	
R30	5600Ω	2	TV-IR-123	BTS-5600	
R31	180K		TV-IR-96	BTS-180K	
R32	47K		TV-IR-46	BTS-47K	
R33	100K		TV-IR-55	BTS-100K	
R34	470Ω		TV-IR-6	BTS-470	
R35	33K		TV-IR-58	BTS-33K	
R36	6800Ω		TV-IR-76	BTS-6800	
R37	68000		TV-IR-76	BTS-6800	
R38	2.2Meg		TV-IR-13	BTS- 2.2Meg	
R39	220K		TV-IR-41	BTS-220K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRAV-LER Part No.	IRC Part No.	NOTES
R40	470K		TV-IR-11	BTS-470K	
R41	100Ω		TV-IR-104	BTS-100	
R42	2.2Meg		TV-IR-13	BTS- 2.2Meg	
R43	33K		TV-IR-58	BTS-33K	
R44	2200Ω		TV-IR-97	BTS-2200	
R45	15K		TV-IR-63	BTS-15K	
R46	1Meg		TV-IR-105	BTS-1Meg	
R47	150K		TV-IR-115	BTS-150K	
R48	530K		TV-IR-116	BTS-530K	
R49	1.5Meg		TV-IR-119	BTS-1.5Meg	
R50	47K	1	TV-IR-139	BTA-47K	
R51	1800Ω		TV-IR-122	BTS-1800	
R52	33K		TV-IR-58	BTS-33K	Note 2
R53	150K		TV-IR-96	BTS-150K	
R54	470Ω		TV-IR-6	BTS-470	
R55	1Meg 5%		TV-IR-105		
R56	1Meg 5%		TV-IR-105		
R57	1Meg		TV-IR-13		
R58	100K		TV-IR-43		
R59	4700Ω				Note 3
R60	1500Ω		TV-IR-20	BTA-47K	
R61	100K		TV-IR-43		
R62	15K		TV-IR-63		
R63	4700Ω		TV-IR-48		
R64	30K		TV-IR-64		Note 4
R65	680K		TV-IR-116		Note 5
R66	100Ω		TV-IR-104		
R67	47000		TV-IR-48		
R68	2.2Ω		TV-WR-21	BWP-3.2	
R69	44Ω	25	TV-WR-20		
R70	5Ω	5	TV-F-6		
R71	330K	1	TV-IR-154	BTA-330K	

Note 1. Some versions use a 100K resistor in this application (part #TV-IR-43).
Note 2. Some 17" models use a 47K resistor in this application, 21" models use a 37K resistor in this application (part #TV-IR-62).
Note 3. Some versions use a 6800Ω resistor in this application (part #TV-IR-48).
Note 4. Some versions use a 33K resistor in this application (part #TV-IR-58).
Note 5. Late production uses a 680K resistor in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA: TRAV-LER Part No.	Halldorson Part No.	Merit Part No.	RCA TYPE No.	Ram Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.
T1	Vert. Osc. & Vert. Output Trans.	TV-TR-18							
T2	Horiz. Output Trans.	TV-TR-19	FB-419*‡ ①	RVO-36 *‡ ①	235T1 * ‡ ①	X094* ‡ ①	A-8350* ‡ ①	FLY-16*‡ ①	D-50*‡ ①
T3A	Yoke-Horiz. (28MH)	TV-L-90	DF-503 ②	MDF-74 ②	214D3 ②	TY0P35/3 ②	DY-10A ②	Y-11 ②	Y-20 ②
B	Vert. (2.7MH)								

① Drill new mounting hole(s).
② Requires new centering device.
‡ This part may be superceded by Parts' Manufacturer's introduction of special unit for this application.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
7	9	9	9	9	3	9	9
4	7	7	7	7	2	7	7
T	NC See Note ③	NC See Note ③	NC See Note ③	NC See Note ③	NC See Note ③	NC See Note ③	NC See Note ③
1	1	1	1	1	1	1	1
Special Notes	③	③	③	③	③	③	③

③ Install damping network consisting of approximately 50-100MMF ② 2KV, and 1000Ω ④ 1W connected in series across terminals #3 and #7 of horizontal yoke.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: TRAV-LER PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T4	4.35KΩ	3-4Ω	TV-AT-16	Z1107	A2930	A3850	24S60	S-51X	

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP	REPLACEMENT DATA: TRAV-LER PART No.	QUAM PART No	RCA TYPE No	NOTES
SP1	5"	PM	3-4Ω	SPK-36	5A07	20S52	

COILS (RF-IF)

ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: TRAV-LER Part No.	MEISSNER Part No.	MERIT Part No.	MILLER Part No.	NOTES
L1	1st. Video IF	0Ω	.5Ω	TV-L-63				
L2	2nd. Video IF	.7Ω	.7Ω	TV-L-61				
L3	3rd. Video IF	1.1Ω	.7Ω	TV-L-67				
L4	1st. Sound IF	.4Ω		TV-L-68				
L5	Series Peaking Coil	15Ω		TV-L-66	19-3300 *	TV-190 *	6132 *	330 Microhenries, wound on 27K resistor
L6	Shunt Peaking Coil	20Ω		TV-L-65	19-3669		6148	680 Microhenries
L7	Series Peaking Coil	15Ω		TV-L-66	19-3300 *	TV-190 *	6132*	330 Microhenries, wound on 27K resistor
L8	Shunt Peaking Coil	20Ω		TV-L-65	19-3669		6148	680 Microhenries
L9	2nd. Sound IF	.6Ω		TV-L-69				
L10	Ratio Detector	2.8Ω	1.8ΩCT	TV-L-17	17-3497	TV-115	6305	Tertiary winding - .8Ω

* Parallel with 27K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: TRAV-LER PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	NOTES
L11	160Ω		TV-L-64	19-1576	TV-163	6310			HS-5	

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	RATINGS: INDUCTANCE @ CURRENT	REPLACEMENT DATA: TRAV-LER PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L12	270A	23Ω	6 HY	TV-FC-3				26C44 ①	C-23X ①

① Drill one new mounting hole.

SELENIUM RECTIFIER

ITEM No.	RATING: CURRENT	REPLACEMENT DATA: TRAV-LER PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.270A	TV-RE-3	1N56A	MR300	6E500	RQ4	300	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: TRAV-LER PART No.	SYLVANIA PART No.	NOTES
M3	1N60	TV-SC-1	1N60	Video Det. (Pigtail)
M4	1N60	TV-SC-1	1N60	Audio Ratio Det. (Pigtail)
M4	1N60	TV-SC-1	1N60	Audio Ratio Det. (Pigtail)

SELENIUM DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: TRAV-LER PART No.	SYLVANIA PART No.	NOTES
M5		TV-RE-6	1N34AT	Horiz. Phase Detector (Pigtail)

† 2 Required.

MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
M6	Tuner	TV-TA-25	VHF
M7	Centering device		Part of deflection yoke (T3) rear cover.
M8	Ion Trap	TV-MA-7	
	Knob	TV-K-160	Fine Tuning
	Knob	TV-K-161	Channel Selector
	Knob	TV-K-188	On-Off-Volume, vertical hold, horiz. hold, contrast
	Safety Glass	TV-DW-52	Models 517-106, 517-107
	Safety Glass	TV-DW-56	Models 521-111, 521-112
	Mask	TV-MP-48	Models 517-106, 517-107
	Mask	TV-MP-58	Models 521-111, 521-112

)ESCRIPTIONS
S

IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
I-137	U-53	Volume
: Req.	Not Req.	Attach to R1A
-1	US-26	Attach to R1A
-123	TA54L	Vert. Hold
: Req.	Not Req.	Attach to R2A
-123	TA54L	Horiz. Hold
: Req.	Not Req.	Attach to R3A
-108	TA13L	Contrast
: Req.	Not Req.	Attach to R4A
-132	TA55L	Brightness
: Req.	Not Req.	Attach to R5A
-123	PTA54L	Vert. Size
: Req.	Not Req.	Attach to R6A
-132	TA55L	Vert. Linearity
: Req.	Not Req.	Attach to R7A

otherwise listed.

M	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	TRAV-LER PART No.	IRC PART No.	
	470K		TV-IR-11	BTS-470K	
	100Ω		TV-IR-104	BTS-100	
	2.2Meg		TV-IR-13	BTS-2.2Meg	
	33K		TV-IR-58	BTS-33K	
	2200Ω		TV-IR-67	BTS-2200	
	15K		TV-IR-63	BTS-15K	
	1Meg		TV-IR-105	BTS-1Meg	
	180K		TV-IR-115	BTS-180K	
	820K		TV-IR-116	BTS-820K	
	1.8Meg		TV-IR-119	BTS-1.8Meg	
	47K	1	TV-IR-120	BTA-47K	
	1800Ω		TV-IR-122	BTS-1800	
	33K		TV-IR-58	BTS-33K	Note 2
	150K		TV-IR-95	BTS-150K	
	470Ω		TV-IR-6	BTS-470	
	1Meg 5%		TV-IR-105		
	1Meg 5%		TV-IR-105		
	1Meg		TV-IR-12		
	100K		TV-IR-43		
	4700Ω				Note 3
	1500Ω		TV-IR-29		
	100K		TV-IR-43		
	15K		TV-IR-63		
	4700Ω		TV-IR-48		
	10K		TV-IR-64		Note 4
	820K		TV-IR-116		Note 5
	100Ω		TV-IR-104		
	4700Ω		TV-IR-48		
	2.2Ω		TV-WR-21	BW$\frac{1}{2}$-2.2	
	44Ω	25	TV-WR-20		
	5Ω	5	TV-F-6		
	330K	1	TV-IR-124	BTA-330K	

s application (part #TV-IR-43).
is application, 21" models use a
is application (part #TV-IR-48).
application (part #TV-IR-58).
his application.

) CIRCUITS)

CEMENT DATA				
CA E No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
1 * § ①	X094* §①	A-8280* § ①	FLY-16*§ ①	D-50*§①
②	Y70F25/3 ②	DY-10A②	Y-11 ②	Y-20②

of special unit for this application.

MER CONNECTION DATA

cement Type Is Listed

Ram eplacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
9	3	9	9
7	2	7	7
IC See lote ③	NC See Note ③	NC See Note ③	NC See Note ③
1	1	1	1
③	③	③	③

50-100MMF@ 2KV, and 1000Ω@ $\frac{1}{2}$W
zontal yoke.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TRAV-LER PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T4	4.35KΩ	3-4Ω	TV-AT-16	Z1107	A2930	A3850	24S60	S-51X	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	TRAV-LER PART No.	QUAM PART No.	RCA TYPE No.	
SP1	5"	PM	3-4Ω	SPK-36	5A07	205S2	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	TRAV-LER PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	1st. Video IF	0Ω	.5Ω	TV-L-63				
L2	2nd. Video IF	.7Ω	.7Ω	TV-L-61				
L3	3rd. Video IF	1.2Ω	.7Ω	TV-L-67				
L4	1st. Sound IF	.4Ω		TV-L-68				
L5	Series Peaking Coil	16Ω		TV-L-66	19-3300 *	TV-190 *	6132 *	330 Microhenries, wound on 27K resistor
L6	Shunt Peaking Coil	20Ω		TV-L-65	19-3660		6148	680 Microhenries
L7	Series Peaking Coil	16Ω		TV-L-66	19-3300 *	TV-190 *	6132*	330 Microhenries, wound on 27K resistor
L8	Shunt Peaking Coil	20Ω		TV-L-65	19-3660		6148	680 Microhenries
L9	2nd. Sound IF	.5Ω		TV-L-69				
L10	Ratio Detector	3.9Ω	1.6ΩCT	TV-L-17	17-3497	TV-115	6205	Tertiary winding -.8Ω

* Parallel with 27K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA							NOTES
	PRI.	SEC.	TRAV-LER PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	
L11	160Ω		TV-L-64	19-1576	TV-163	6210			HS-5	

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	TRAV-LER PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L12	.270A	23Ω	.6 HY	TV-FC-3				26C44①	C-23X①

① Drill one new mounting hole.

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	TRAV-LER PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.270A	TV-SR-5	1236A	MR300	6S300	6Q4	300	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		TRAV-LER PART No.	SYLVANIA PART No.	
M2	1N60	TV-SC-1	1N60	Video Det. (Pigtail)
M3	1N60	TV-SC-1	1N60	Audio Ratio Det. (Pigtail)
M4	1N60	TV-SC-1	1N60	Audio Ratio Det. (Pigtail)

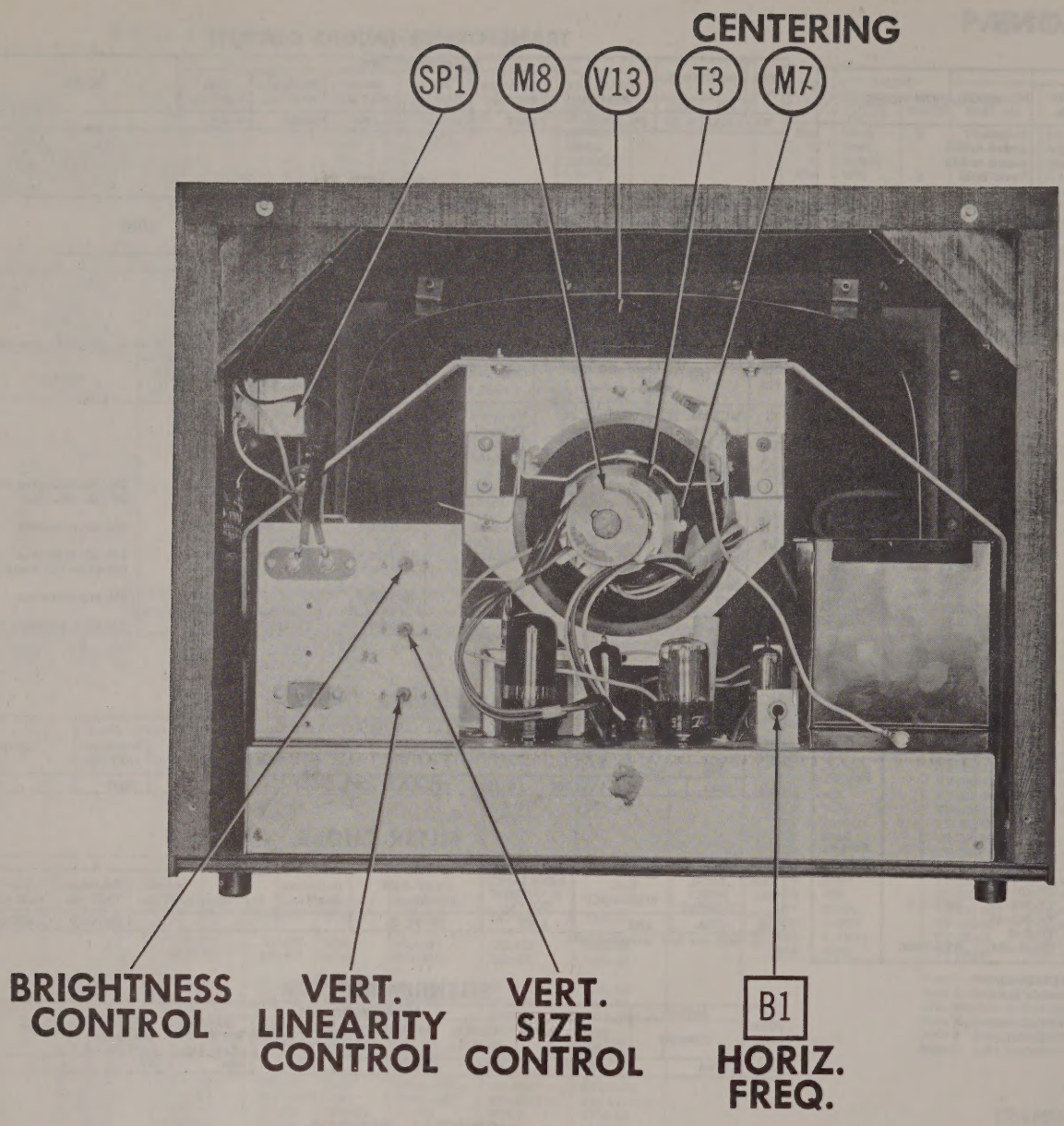
SELENIUM DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		TRAV-LER PART No.	SYLVANIA PART No.	
M5		TV-SR-6	1N34A†	Horiz. Phase Detector (Pigtail)

† 2 Required.

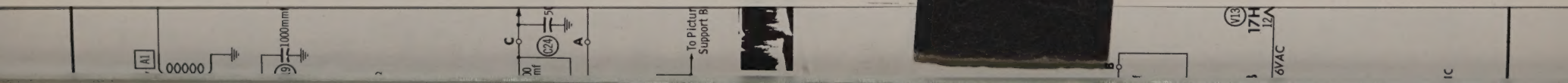
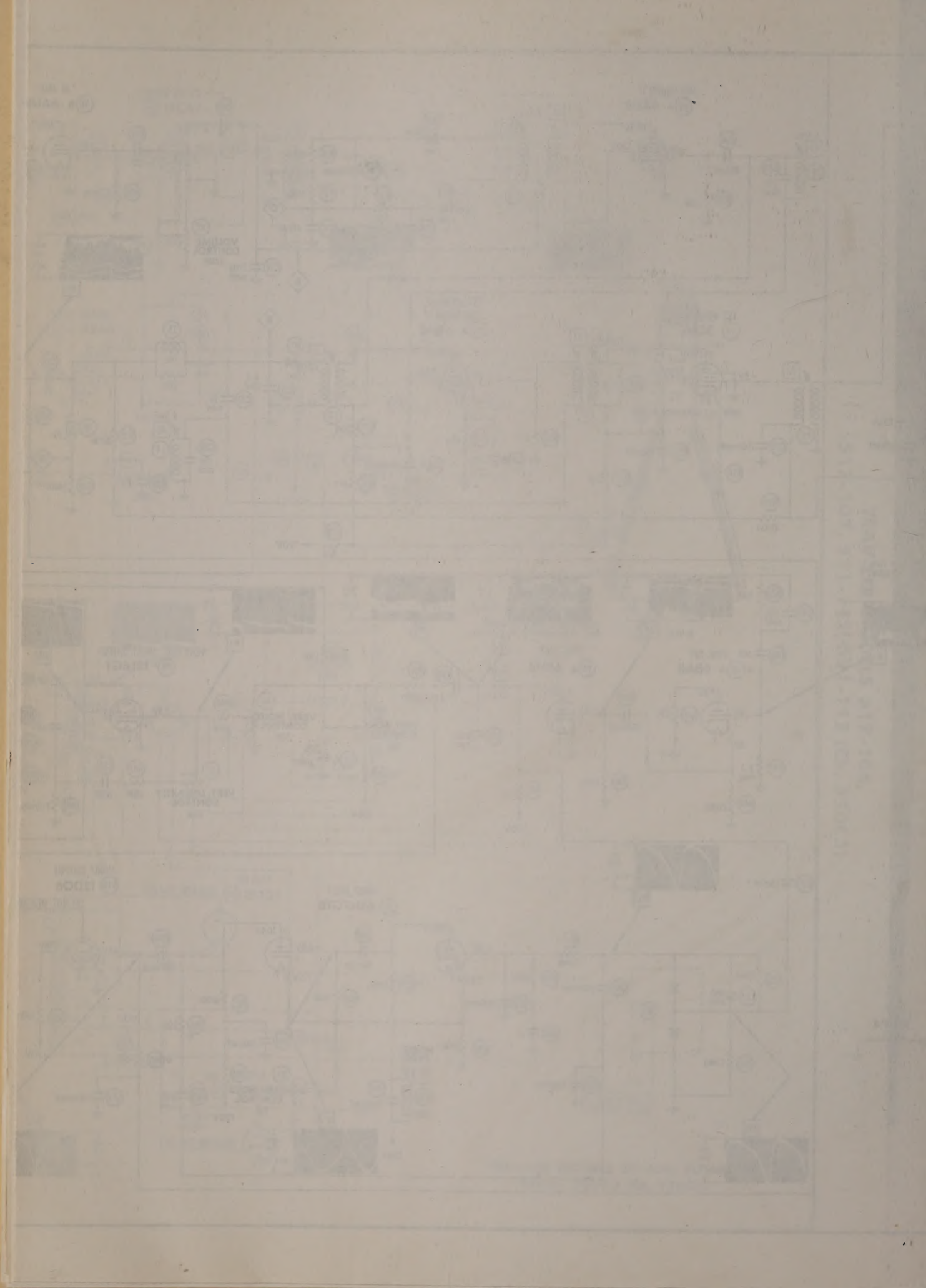
MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
M6	Tuner	TV-TA-25	VHF
M7	Centering device		Part of deflection yoke (T3) rear cover.
M8	Ion Trap	TV-MA-7	
	Knob	TV-K-160	Fine Tuning
	Knob	TV-K-161	Channel Selector
	Knob	TV-K-188	On-Off-Volume, vertical hold, horiz. hold, contrast
	Safety Glass	TV-DW-53	Models 517-106, 517-107
	Safety Glass	TV-DW-56	Models 521-111, 521-112
	Mask	TV-MP-48	Models 517-106, 517-107
	Mask	TV-MP-58	Models 521-111, 521-112



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.
Set the horizontal hold control at its mid-range position. Adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. Check locking-in action by switching off channel and back again. If the picture does not pull back into sync, re-touch B1 until the picture does pull-in sync after switching off channel and back again.

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO